

MARCH 1971

# AIRFIX FOR PLASTIC MODELLERS magazine

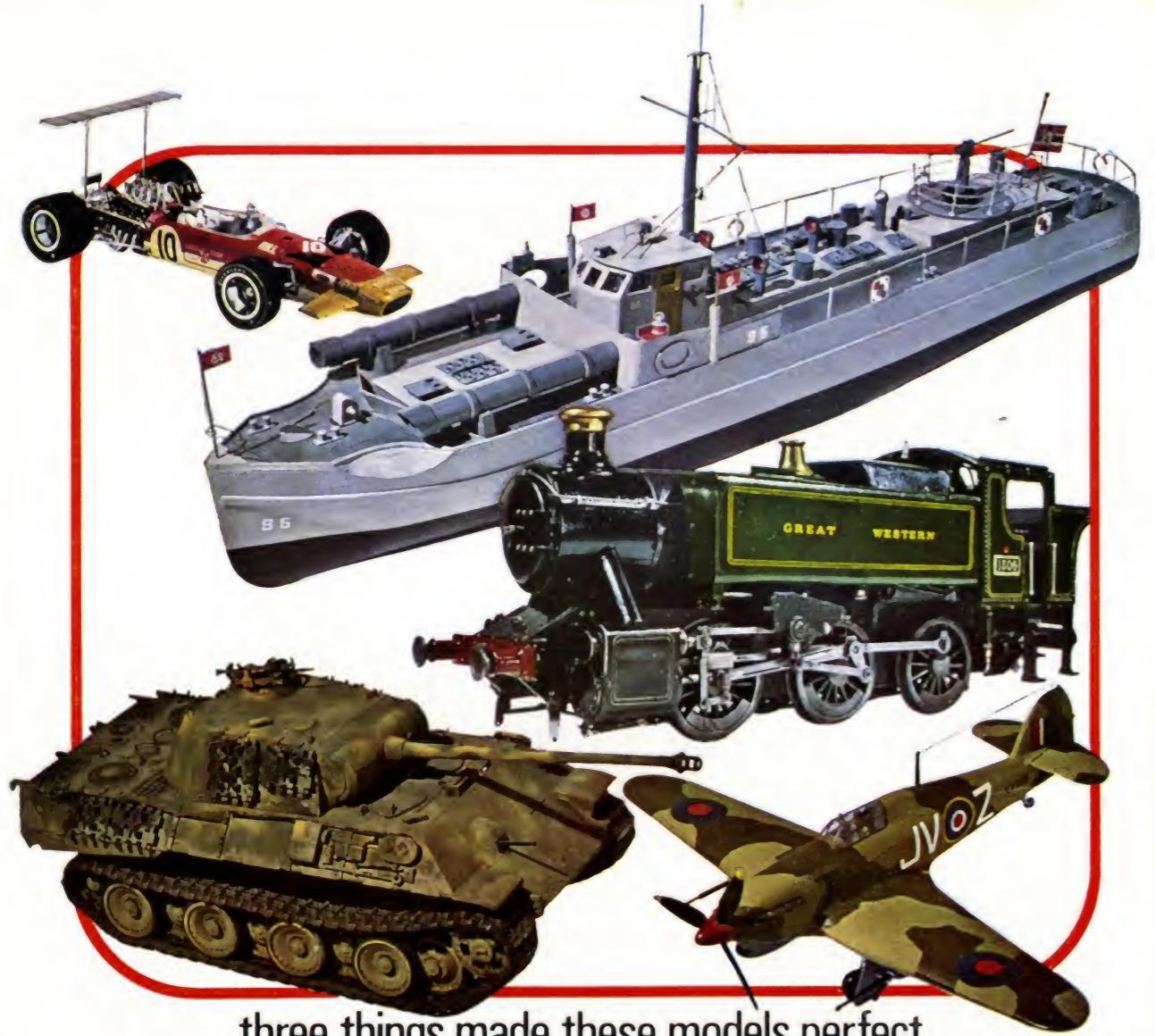
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ISSUE

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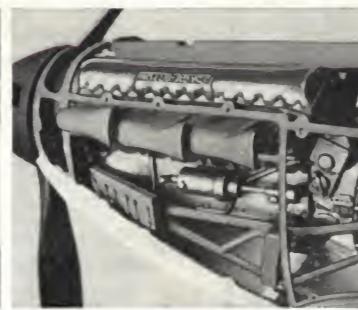
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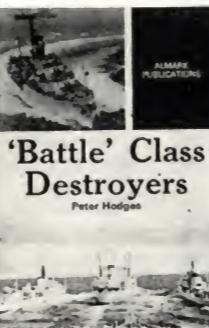
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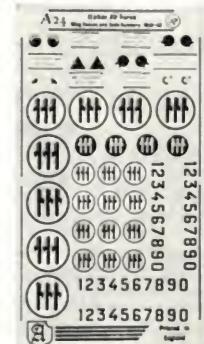
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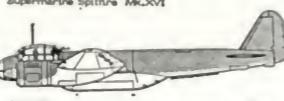
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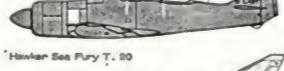
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AIRFIX magazine

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FOR PLASTIC MODELLERS

March 1971

Volume 12 No 7

**Cover Picture**

A grey-painted Leopard of the Bundeswehr stands by to open fire on the ranges at Hohne, West Germany, during last year's NATO tank gunnery competition. In the foreground a Bundeswehr officer observes the target ready to record the result. Note that he has the pink panzer Waffenfarben (piping) on his cap in similar style to the wartime German panzer field cap. Tanks of all the NATO armies take part in this annual competition. The Leopard is armed with the same highly efficient 105 mm British gun as later marks of the Centurion and in this particular view the distinctive eccentric fume-extractor can be clearly seen—in scale models this is often incorrectly portrayed as concentric.

Next publication date:  
March 26, 1971

**Advertisement Representatives:**  
Jackson-Rudd & Associates Ltd  
Field House, Breams Buildings  
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**Circulation Department:**  
Surridge Dawson & Company (Productions) Ltd  
Publishing Department, 136/142 New Kent Road, London, SE1  
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Airfix Magazine is published for the proprietors, Airfix Products Ltd, by PSL Publications Limited, on the fourth Friday of each month. Annual subscription rate £2.20 (USA \$6.50) from Surridge Dawson & Company (Productions) Ltd. Second Class postage paid at New York Post Office, N.Y.

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March, 1971

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PSL Publications Ltd  
9 Ely Place  
London, EC1N 6SQ  
Tel: 01-405 2297

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**Assistant Editor:** Peter Woodhouse

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## IN THE AIR

**by Alan W Hall**

THE US Navy's new F-14 Tomcat built by Grumman Aircraft of Bethpage, New York, flew for the first time on December 21. This sortie was successful, but on its second flight, on December 30, the aircraft plunged to destruction as it was making its final approach to Calverton airfield, the Grumman Flight Test Center on Long Island. Chief test pilot Robert Smith and project pilot William Miller escaped by using their Martin Baker ejection seats.

Grumman say that in spite of having lost the first prototype it should not put the advanced research programme for the aircraft too far behind schedule. The first flight was in fact made 40 days ahead of the required date. Preliminary investigations indicate that the cause of the accident was due to a total hydraulic failure. The second of 12 prototype aircraft is due to fly in about one month's time.

Designed as a carrier-borne air superiority fighter, the F-14 has a swing-wing similar to the ill-fated F-111 which has been dogged by development troubles and is now in limited service with the USAF. Grumman have designed what has been described as the most advanced all-weather fighter yet produced. Apart from its main role it can perform secondary missions of interdiction and Fleet air defence without aerodynamic or weight



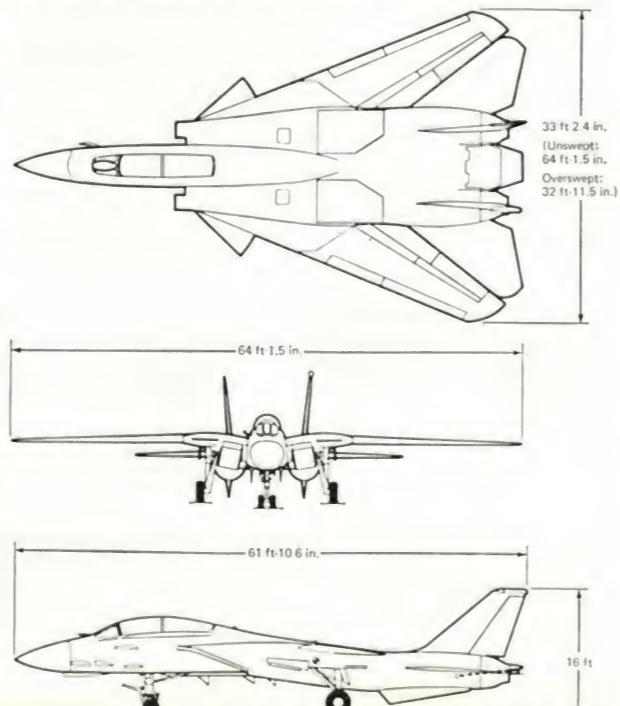
penalties to its basic capability. Production has been spurred on by the large technological strides made by the Russians in similar types of aircraft which have overtaken the F-4 Phantom and are posing a threat to the Americans' overall air superiority in the next decade.

Based around the AWG-9 airborne missile control system, the Tomcat is armed with an M61 Vulcan 20 mm cannon and a mixture of Sidewinder, Sparrow, Phoenix and Agile missiles for both offensive and defensive operations. It has a speed of more than Mach 2, a combat ceiling of over 50,000 feet and can land and take off in under 1,000 feet. A crew of two are carried and the power is supplied by two TF30-P-412 after-burning turbofans with a total thrust of over 40,000 pounds static thrust.

### Thirty Hunters sold to Switzerland

A CONTRACT for the sale of 30 refurbished Hunters was signed between Hawker Siddeley Aviation and the Swiss Government in Berne recently. This contract is subject to the agreement of the Swiss Parliament. The first aircraft is planned to be delivered to the Swiss Air Force in the Autumn of 1972 with final delivery by Autumn 1974. The purchase of the 30 Hunters is in no way connected with the present re-evaluation by the Swiss Air Force for a combat aircraft replacement. Hawker Siddeley have a long association with Switzerland through the supply in the past of Vampires, Venoms and Hunters.

THE second Harrier squadron to be based in RAF Germany, No 20, formed at RAF Wildenrath recently. It joins No 4



Above: Tomcat makes its maiden flight on December 21. Opposite page, top: Hawker Harrier of the type recently handed over to the US Marines in a ceremony at Dunsfold. Bottom: Drawing and photo of the mock-up F-14 show clearly its large size.

Squadron which in August 1970 became the first military unit in the world to operate the revolutionary jump-jet fighter outside Britain. Both squadrons will operate their Harriers in the close support and reconnaissance roles and when worked up to fully operational status, will join Belgian, Dutch, German and other Royal Air Force Germany squadrons in NATO's Second Allied Tactical Air Force.

The arrival of No 20 Squadron in Germany marks another step in the major re-equipment programme now under way in that Command. Designed to modernise the combat element and vastly improve its operational capability, the programme, which involves the deployment to Germany of squadrons of Phantoms and Buccaneer aircraft as well as Harriers is visible evidence of Britain's increased contribution to NATO.

### Puma deliveries begin this month

DELIVERIES of the Anglo-French SA300 Puma logistic support helicopter are due to begin this month at RAF Odiham, the Air Support Command Base in Hampshire. The Puma is one of three helicopters being built under the 'package' deal arrangement made between the two countries and the British aircraft are being assembled at Westland Aircraft Ltd, Yeovil. They will be powered by two Turbomeca Turmo III C4 shaft turbines produced jointly with and assembled by Rolls-Royce. Orders for 40 Pumas are said to have been made by the RAF and the first aircraft will go to No 38 Group which provides all the RAF's tactical helicopters for Army support. RAF Odiham has been chosen as the base for the Puma Operational Conversion Unit and the first course is due to start flying there in May.

With a maximum speed of 160 knots this helicopter can carry up to 16 fully-equipped troops. The troop-lift capability is more than twice that of the Whirlwind helicopter, the type it is intended to replace. Other advantages include greater range and higher speeds. Specifically designed to be air-transportable, the Puma can be carried in either the Belfast or Hercules freighters of Air Support Command. Britain's share of both the airframe and engines in the Puma is understood to be about 27 per cent, while Pumas delivered to the RAF will have both British radar and navigation aids.

### Operational conversion units

WITH the introduction of new aircraft and changes in the operational status of various RAF Stations, the Minister of Defence (Air) has now made a number of changes in the numbering and disposition of its Operational Conversion Units. At the present time these are as follows:

Unit	Aircraft	Base
No 226 OCU (145 Squadron)	Lightnings	Cottingham
No 228 OCU (64 Squadron)	Phantoms	Coningsby
No 229 OCU (63, 79 & 234 Squadrons)	Hunters	Chivenor
No 230 OCU	Vulcans	Scampton
No 231 OCU	Canberras	Cottesmore
No 232 OCU	Victors	Marham
No 233 OCU	Harriers	Wittering
No 236 OCU	Nimrods	St Mawgan

### Another military order for Skyvan

THE Nepalese Army recently ordered a Short Skyvan 3M military transport aircraft, becoming the fifth country to order this type last year. Skyvans are already in service with the Austrian, Indonesian and Sultan of Oman's Air Forces and are on order for the Argentinian Naval Prefectura. Announcing the

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order in Belfast, Short's also revealed that they are increasing the Skyvan's rate of production to meet growing demands for this light twin-turboprop STOL aircraft. The Nepalese Army's order follows shortly after an extensive evaluation amid the high Himalayas using Short's own Skyvan 3M demonstrator. During this evaluation, many Nepalese troops and bulky supplies were parachuted. One of the Nepalese requirements is the ability to drop men and supplies during mountain emergencies. Another, already proved in an earlier tour of Nepal by a civil Skyvan, is for outstanding STOL performance at high altitude. Many of the Nepalese air strips are very short, sloping stretches of mountainside at elevations of up to 10,000 feet above sea level. The total order book for Skyvans now stands at over 50.

### Two No. 2's

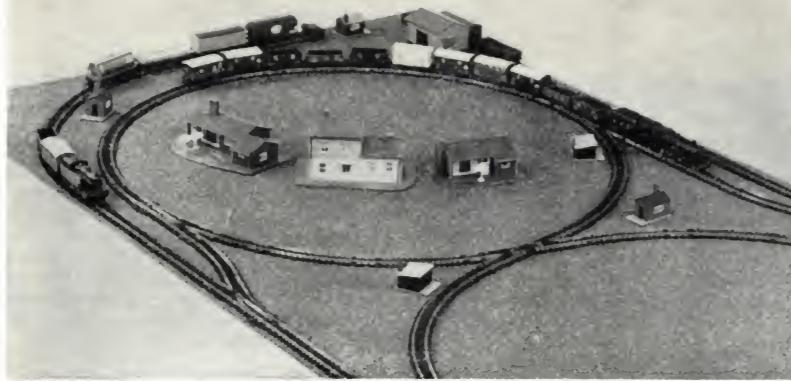
AT the same time as the Harriers moved to Germany, an unusual occurrence in the history of the RAF took place as two No 2 Squadrons were in service at the same time. One of these was operational on Hunter FR 10s, fighter reconnaissance aircraft, whilst the other was working up on the Phantom FGR 2s. The curious situation had arisen because of the need to maintain an operational fighter reconnaissance squadron in Germany while its replacement works up on the new and vastly more sophisticated Phantom.

One of the oldest and most famous squadrons in the RAF, No 2 Squadron can trace its history right back to the first days of British military aviation. The first Buccaneer S2 Squadron in Germany is to be No XV which is at present attaining operational status at RAF Honington, Suffolk.



Above: Two views of XW 526, a Buccaneer in the new markings of XV Squadron, RAF (John D. R. Rawlings). Below: An unusual visitor to Birmingham (Elmdon) Airport in January was this Ghana Airways VC-10, 9G-ABO, diverted there due to bad weather (S. G. Richards).





# 'N' Gauge continued

A simple layout and a GWR coach

FOLLOWING January's survey of British N gauge equipment, my thoughts have centred on ideas for a layout which would extract the maximum value from all the new-found benefits of the smaller scale, utilising equipment which is either available or is expected to be available shortly. My own personal view about N gauge is that the small size is best exploited not by reducing the size of the layout to the minimum but by expanding the track plan to fill the space and size of baseboard we have become accustomed to in OO gauge. I concede, of course, that some people who, before N gauge, just were not able to find space for a layout at all, will now jump at the chance of being able to build something, even if it means a space as little as 3 ft x 2 ft which can, if needs be, be hidden out of sight when not in use. Unfortunately, a small layout in a space such as this, even in N gauge, is hardly enough to give realism to a main-line model and it is mainly main-line locomotives and rolling stock that are currently available.

As surveyed last time, the majority of British N gauge rolling stock commercially available demands a main-line setting. The Peco 'Jubilee' 4-6-0, for example, is a thoroughbred main-line express passenger locomotive and it would not be suitable for a small branch line layout or for short length passenger trains. The other steam locomotives from the Peco stable, the 2-6-4T and 0-6-0 dock tank can, of course, be used on a small branch line system but from an economic



BY NORMAN SIMMONS

point of view the Peco 'Jubilee' is a much better buy since it is a purpose-built ready assembled model of great authenticity, whereas the two tank locomotives are cast metal kits designed to fit on an Arnold chassis. The combined price of kit and chassis for the 2-6-4T is considerably more than the 'Jubilee' and even the diminutive dock tank is only marginally cheaper.

The latest contender for the N gauge market, the Minitrix *Britannia*, is also a purely main-line express passenger locomotive (but occasionally seen on secondary work) and at £9 it is attractively

priced to encourage its widespread adoption on N gauge systems. The diesel locomotives currently available, the Minitrix Type 2, Minitrix 'Warship' and Peco/Arnold 'Hymek' are, with the possible exception of the Type 2, more likely to be seen on the main-line than on a small branch line if only for the fact that most of the small branch lines so beloved by railway modellers ceased to exist after the diesel locomotives came on to the scene.

The one beautiful exception to the run of main-line locomotives which everyone will be pleased to see is the Graham Farish GWR 94XX Class Pannier tank which should be available soon after this article is published. At present it is not known how much this model will cost but, knowing Graham Farish, it is pretty certain that the price will attract many people to purchase one or more examples. Unfortunately, as desirable as the 94XX Class model is undoubtedly going to be, the 94XX Class is not an all-purpose tank engine since in many areas they were regarded as too heavy for branch lines and certain of the class were even supplied unfitted with vacuum pipe and steam heater fittings so therefore could not be used on passenger trains. The 94XX were therefore more commonly seen on shunting and short radius goods working rather than branch line passenger duties and the sort of Ashburton-style branch line terminal-station-to-fiddle-yard layout so well loved by 4 mm scale modellers is inappropriate for a 94XX Class locomotive. In real life the 94XXs were most likely to be seen at important GWR stations, junctions and marshalling yards.

Therefore, I have been conscious of the need to create an expansive main-line layout if all the currently available British rolling stock items are to be given an opportunity of being used. Because of the necessity to provide some operating interest it was considered necessary to incorporate a station and because I must admit I like to see a main-line locomotive enjoying a gallop, I chose to make the station a through station with four running lines. The up and down main lines run through as the two centre roads and the station platforms serve only the up and down local lines. By this means the express passenger trains can be run through unobstructed at express speeds and shunting, pick-up goods work, local stopping services, etc, can carry on unhindered. Despite the thoroughly comprehensive main-line characteristics of

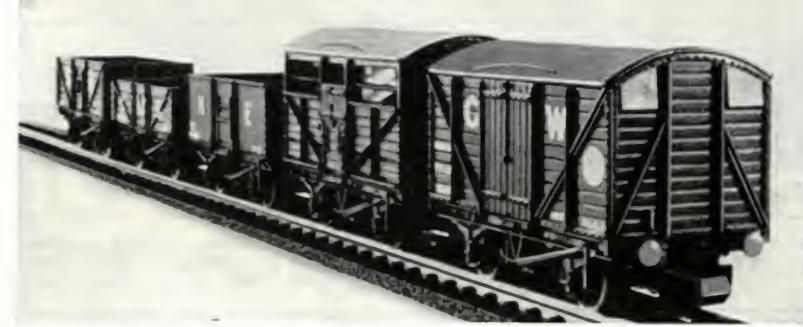
the station the layout has been designed so that it can be constructed in two halves, each half being 5 ft x 2½ ft. Provision has been made for these two halves to be hinged in the centre so that they could fold together to make one easily storable unit or alternatively the two halves could simply be bolted together and unbolted for storage. With the baseboard only 2½ ft wide there should be enough space under the average double bed to store the layout. The baseboard size can, of course, be increased if space is available, in which case the opportunity can be taken of increasing the radius of the curves at each end of the layout.

The main feature of the plan is, of course, the fast straight run through the passenger station and it is intended that the relatively sharp radius curves at each end, which are most unrealistic, should be hidden from view by tunnels. The layout is, of course, a simple oval but the tailchasing effect so often disparaged in continuous run layouts would be minimised in this plan by the tunnels and the length of run available. It will be seen that the main line through the station is approximately 7½ ft long, which would give nearly ½ minute viewing time for a locomotive travelling the distance between tunnels at a scale speed of 60 mph and a further 10 seconds or so before the final coach of a six-coach train disappeared from view. Assuming that the train proceeds round the oval at the same speed, nearly half a minute would elapse before the train reappears.

However, the top half of the layout as seen on these pages can be utilised for storage if required and extra loop lines could be laid in at this point so that trains can be retained until required again. With these storage loops it would be perfectly possible, using relays, to control this sort of operation automatically so that the same train would not reappear each time at the same tunnel mouth. Such a sophisticated development can be something that is added to the layout much later when the rest of it has been completed, thus giving scope for further development, but meanwhile the plan is simple enough to permit running to commence soon after the start of construction.

The plan could be reduced in length by a foot or so simply by reducing the length of the straight running rails or alternatively by dispensing with the points connecting the local to the main lines at the right-hand end of the station and carrying the local lines round the curve to join up with the main lines at the top of the layout plan. This would, however, require a four track tunnel mouth, which is rather a rarity in prototype practice.

Provision has been made in the plan for a reversing loop but this need only be an optional extra and could, if funds are limited initially, be added later when the main bulk of the layout has been constructed. There is a considerable advantage in having a reversing loop



*A closer view of the detail of the Peco Quality Line N gauge wagons with their fine detail, full lettering, and unique E.L.C. coupling which is similar in pattern to the existing N gauge coupling but much shorter to give scale distances between wagons.*

## COACH BUILDING

AT the moment the different types of British railway coaches available to N gauge modellers are limited to main-line corridor coaches of BR standard pattern. Particularly noticeable is the lack of non-corridor suburban or branch line passenger coaches. I must emphasise, though, that these are early days in this new scale and gauge. New products are coming on to the market every month, almost every week, and the three leaders in the field: Peco, Graham Farish and Minitrix, are doing great things to help satisfy the needs of modellers. Meanwhile, however, if we so desperately need some non-corridor rolling stock we will have to make them ourselves.

Fortunately this is no insurmountable problem, although modellers used to the larger scales and gauges such as 'OO' will perhaps find some novelty scratch-building in the much reduced size of N gauge. Even more so with N gauge I would suggest that conditions need to be just right for the modeller. Such things as adequate working light, sharp tools and a firm, uncluttered working surface are essential.

I have acquired a sheet of ¼ inch plate glass approximately 18 ins x 12 ins which I find ideal for a working surface. An adjustable desk lamp which will direct the light on to the work is essential if any degree of accuracy is to be achieved when reading off the much smaller units of dimension that one uses in this gauge. One particularly essential requirement is the British N Scale Rule which has been produced by the N Gauge Society. This rule shows units the equivalent of feet in 2½ mm to the foot scale. The minimum dimension shown on the rule is the scale equivalent of 3 inches and the maximum scale length of the rule is 74 feet. This will enable modellers to produce their own British N Scale drawings comparatively easily, using published data or drawings in other scales as the basis.

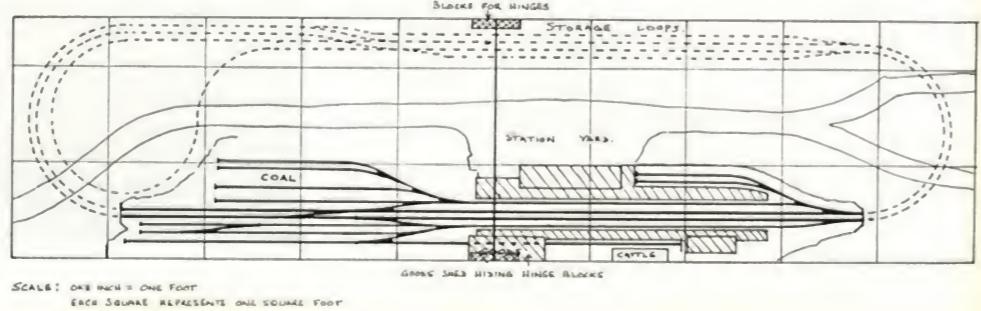
There is now absolutely no shortage of goods rolling stock and an excuse can be found for using all of the currently available Graham Farish and Peco types. With this in mind the layout plan includes generous siding accommodation either side of the main line. The south side includes a goods shed and cattle pen and the north side has room for a spacious domestic coal yard. At least 40 or so wagons could be accommodated in the siding space available, which would make for a fascinating sight.

Talking of wagons reminds me to mention that the first of the new Peco short wheelbase N gauge wagons are now available. These are reviewed separately on page 372, this issue.

*Continued on next page*

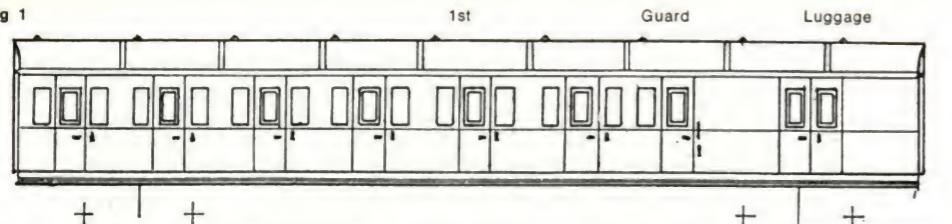
**Top of page:** Not a serious layout this, but a demonstration by Peco of their compact Setrack system of 'snap-together' track sections and points for N gauge. While the curves are of fixed radius, all the track sections are compatible with the well-known Peco Streamline flexible track and other N gauge systems.

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Working drawings for the GWR 'B' Set coach. Two such vehicles coupled together, brake ends outwards, made a standard 'B' Set. Bogies centres are marked with a vertical line, and axles positions with crosses. End view shows slot for chassis fixing peg for Wrenn-Lima coach chassis. Scale 1:148.

### Railways — continued

ducing. If no drawing in any scale is available for the model you are building and you only have a set of published dimensions in feet and inches, one simply reads off these dimensions straight from the rule. Checking the dimensions of a British N gauge model becomes a simple matter since one simply reads off the equivalent scale dimensions in feet and inches straight from the model. The British N Scale Rule can be obtained from model railway stockists, price 12½p. The name and address of the Hon Sec of the N Gauge Society as printed on the rule is K. Parker, 23 Woodside View, Cottingley, Ringley, Yorks.

To come back to the subject of scratch building an N gauge non-corridor coach, I should perhaps make it clear that I only intend making the body. For the underframe I decided to use a Tri-ang/Wrenn BR coach. These have a bogie design modelled after the BR standard BR1 type bogie which should have an 8½ ft wheelbase. Unfortunately, on checking the Tri-ang/Wrenn bogie using the British N Scale rule, one finds the wheelbase is nearer a scale 7 ft 3 ins. This is very much nearer the 7 ft wheelbase bogies used by the GWR during the period 1925 to 1932 and since the Tri-ang/Wrenn bogie is not too unlike the GWR 7 ft bogie design I decided to follow a GWR prototype.

This led me to think of the ubiquitous GWR 'B' Set. These were close coupled two coach non-corridor sets which were used on GWR steam-hauled branch lines and cross-country stopping services from the time the first set was built in 1924 until diesel multiple units finally made them all redundant in 1963. There was no such thing as a standard 'B' Set since they were built to different detailed designs; some had flat ends whilst others were bow-ended, some had 7 ft bogies and some had 9 ft bogies, some had seven compartments and others had only six. I believe they all had one First Class compartment which was, of course, recognisable from the outside, if nothing else, by the extra wide panels either side of the windows due to the extra width of the compartment. The majority of the 'B' Set coach bodies were either 57 ft or 61 ft 2 ins long but a batch of 10 built in 1925/26 were 58 ft 2 ins long. At least 280 of these brake composite coaches were built, which is a fair indication of their wide availability. When coupled together to form a 'B' Set, the two coaches had their guard and luggage

compartments at each end of the set.

To strip the Tri-ang/Wrenn BR corridor coach ready for this conversion is quite a simple matter. There are two plastic pegs moulded one at each end of the chassis floor which fit into square holes in each end of the body. The pegs are just visible at each end of the coach and if they are depressed with a suitable sized tool, such as a small screwdriver, it is possible to pull the chassis away from the body. Fixed inside the body is a moulded clear-plastic glazing piece. If you can find a way of removing the white paint which has been added to this glazing piece to represent corridor hand-rails and frosted glass toilet windows, you can probably re-use this glazing piece to add strength to the model, but so far I have not been able to find a method which will remove the paint without scratching the surface of the clear plastic.

The new body is built up out of plastic card. The sides are best cut from 10 thou sheet, great care being taken to cut out the windows as neatly and evenly as possible. A really sharp craft knife blade is essential for this operation. Fig 1 shows a side and end elevation of the body and Fig 2 shows how the sides and roof can be built up using several thicknesses of plastic card. The sides are made up of three layers; an inner and outer wall with the glazing material in between. An impact adhesive such as Epo-stik is best for glueing these parts together since the surplus adhesive can be scraped away from the windows without damaging them after the sides have been stuck together. The window frames should be painted before assembly.

It will be noticed in Fig 2 that the inner wall to the sides has been lowered to represent the solebar. The solebar and bottom edge of the body are too high in the Tri-ang/Wrenn model, presumably to give maximum clearance to the bogies, but since this hardly seems necessary and because it ruins the appearance the opportunity has been taken to correct the fault with the new body. Arising out of this the buffers are really far too high on the Tri-ang/Wrenn coach underframe. This should be overcome by reducing the height of the bogie pivots but this would necessitate gouging out some grooves on the underside of the chassis floor to clear the bogie wheel flanges. If you decide to lower the chassis floor this way then you should remember not to bring the sides down lower as in Fig 2.

The underframe details on the Tri-ang/Wrenn model are incorrect for a GWR 'B' Set coach but you may feel that in N gauge there is not a lot of point going

to the trouble to make the underframe 100% correct since it is largely obscured. This is perhaps a matter of opinion but should you want to do the right thing an extra pair of truss rods mounted on the outside edge of the underframe will go a long way towards adding realism to the model.

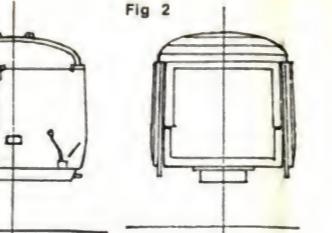
The new ends should be cut from thick, say 40 or 60 thou sheet plastic card, and the square holes to take the underframe fixing pegs should be accurately cut. Provided this is done the new scratch-built body can be made to fit the chassis exactly as the Tri-ang/Wrenn body does. The roof is made up of several layers of plastic card to bring it up to the correct height. Provided the different layers have been well cemented together the contour lines they form will assist in achieving the right curvature to the roof when it is carved, filed and sanded to shape.

After assembly of the sides, ends and roof, the model should be allowed to stand on a sheet of glass under slight pressure for at least 12 hours so that the cement dries thoroughly. After the roof has been trimmed to shape it can be finished off with detail such as small pin heads for roof ventilators and thin strips of paper for the ridges that overlap the joins in the roof panels.

I am indebted to Mr Pritchard, the Managing Director of Peco Railway Models for an explanation of the very good reason why British manufacturers adopted the 1:148 scale instead of the Continental 1:160 scale for N gauge. In fact Peco were the originators of this move and did a great deal of research in the interest of the scale generally, and in particular for the N Gauge Society. The whole point is that even the Continental products, which are to the 1:160 scale and have a much wider loading gauge, are not strictly speaking correct. Their bogies and underframes are wider than they should be, but because of the extra overhang in the bodies this is not noticed and is never referred to.

The poor British manufacturer, on the other hand, faced with the very much narrower prototype, finds it quite impossible if the same out of scale, but very practical, wheels are going to be used and due allowance is to be made for thickness of mouldings, etc, so necessary to do so within the scale width. It is easy to make a locomotive, coach or wagon to 1:160 scale as far as length is concerned and even height, although again because of the small loading gauge it is almost impossible to get a motor in the locomotive. The governing factor,

Continued on page 355



## Modelling the armies of the Napoleonic era for wargames by Robert C. Gibson

### Part 4: Anglo-Dutch Cavalry

FOLLOWING on from last month's article we can complete the coverage of Anglo-Dutch cavalry. You will need to refer to last month's article and drawings when reading this.

#### Brussels Hussars and Lancers

The Brussels Hussars wore all black dolmans and overalls (with black leather inside legs). The waist girdle was sky blue and yellow and the dolman collar sky blue. The shako was black with a hanging black plume and a silver skull-and-crossbones in front. Belts, and boots were black. Horse furniture was a black sheepskin with sky blue 'teeth'. No pelisse was worn.

The squadron of lancers (Uhlans) wore black coates and overalls. The collar, plastron front, tschapka top and overall stripe were skyblue. The lower half of the tschapka (lance-cap) and the belts and boots were black leather. The 9-foot ash lance had a yellow-over-blue pennant.

#### Dutch-Belgian Cavalry

The heavy cavalry consisted of three regiments of carabiniers wearing steel helmets with a brass comb and black crest white plume and brass fittings. Coates were dark blue, for the 1st Regiment with red piping on collar, plastron front and cuff slashes (cuffs were red). The 2nd Regiment wore the same except that the plastron was entirely red. The 3rd Regiment had yellow cuffs and piping on the collar, etc, as for the 1st. All regiments had red coat-tails. Breeches and belts were white and black high boots were worn. Sword was brass hilt in a steel scabbard.

**Below, left to right:** Life Guards trumpeter, French lancer (see next month's issue), Dutch-Belgian 5th Light Dragoons trumpeter, Brunswick Lancer. See last month's drawings for extra details.



Above, left to right: British Hussar, Brunswick Hussar, British general staff officer (see Part 2 of this series), Household Cavalry trooper.

wide by 4 mm deep). The Life Guards or Royal Horse Guards are similarly arrived at, the only difference being a fur crest on the helmet after removal of the horsehair mane. For both types, the boot tops are pared away to give the appearance of overalls. The Dutch-Belgian carabinier will not need the overalls, but he will need the trimmed helmet and fur crest. The Dutch-Belgian Light Dragoon comes from the US Cavalry with a shako added, as described for the infantry last month, from sprue. Legs are cleaned to give overalls, and coat tails cut from the seat of the trousers.

An Officer of 2nd Dragoons (Scots Greys) comes from the Civil War Artillery outrider, fitted with a Guardsman's bearskin suitably altered to give plate and peak. The horse is a US Cavalry one, trimmed to fit. The blanket comes from heated sprue bent into position (note: heat in boiling water for this operation).

The British Hussar is another Civil War Artillery rider, his hat cut to form a busby, the bag added from paper. The pelisse is also cut from paper, with separate arms, and glued in position round the neck after painting the dolman. This may not look as good as a Plasticine pelisse but is much more sturdy and looks very effective.

The Brunswick Hussar is an ex-US Cavalryman, with sprue shako and Plasticine girdle and sheepskin. A very effective figure of the Duke of Brunswick himself may be made by giving the basic Hussar a knee-length black coat and a crimson waist sash.

The Brunswick Uhlan comes from the Wagon Train Scouts horse and artillery outrider. The top of the hat is made like a jockey cap, pierced in the top centre; then the pyramid-shaped top is inserted over the joining pin. Lance is made of stretched sprue, pennant of tissue.

Each year the International Plastic Modeler's Society hold a National Championship for members' models with heats throughout the year, at the monthly meetings. The heat winners go into the finals which, for 1970, were held at the Clarence Restaurant, Maples, London W1, on December 5 last. For the first time ever the overall National Championship went to a model soldier entry, the bugler of the 5th Royal Irish Lancers of the 1900 period, shown here. Scale is 1:30 (54 mm) and the model is by W. Hearne.



# The Ta 152 Series

Details for modelling and finishing  
the final variant of the Fw 190,  
using the Airfix or Frog kits

By L. Whitehouse

MUCH has been made of the superiority of the Focke Wulf 190 when it first entered service in 1941, and of the improved 'D' version (see *Airfix Magazine*, June 1969). To the layman all similar types are immediately classified as 'Focke Wulf'. Such is the price of fame that the third basic type has faded into obscurity. This is most unfortunate since it was the best of the series and had the 1939-45 war continued it could have been a great boost to the Luftwaffe piston-engined fighter force. One reason for its lack of recognition could be that the type number changed and did not encourage immediate association with the Fw 190A and D types. (The type number was altered from Fw 190 to Ta 152 but the initial sub types were consecutive, 190G being followed by 152H.)

This article covers all the aircraft in the Ta 152 series. In the first instance it was conceived to give details for converting the Airfix Fw 190D to Ta 152 configuration. However, the recent release of a Ta 152H kit by Frog renders this unnecessary unless you are unable to get hold of this kit. However, there are other Ta 152 variants—the 'C' and 'B' models—which can be made by conversion from the Frog Ta 152H or from the Airfix Fw 190D (the latter requiring rather more work). The notes given here should enable any variant to be produced, while the details will be useful for all Fw 190D and Ta 152 models.

## Ta 152H from the Airfix Fw 190D

(1) Assemble the fuselage halves and when dry cut vertically down directly ahead of the wing and separate the nose from the fuselage. A piece of block balsa 8 mm long is then glued on to the end (grain parallel to the fuselage). The nose is replaced on the end of this, checking that the panel lines and outline are continuous.

(2) While the fuselage is drying, assemble the wing halves. Remove the incorrectly placed cannon blisters and remove all raised surface detail with 'wet and dry' paper used wet. Cut off the wing locating pegs and file the root section to clean up the remains of these lugs.

The tips of the wings must now be cut off and plastic card shapes, filed as much as possible to the new shape and section, must be glued to the cleaned up joint. Now file some new cannon blisters from scrap, or file one from balsa and mould two new blisters using this as a pattern.

Fit these blisters in the position shown on the plan.

(3) Return to the fuselage and carve the balsa insert down to blend in with the fuselage lines, at the same time removing the fuselage panel lines. The fin and rudder assembly is now altered. Build it up with plastic body putty or remove the entire unit and fit a new one from plastic card. If an open cockpit is required, cut off the rear fixed fairing, since it should slide with the canopy. The hole is blanked off with plastic card.

The rear fuselage can be cleaned up following the plan similarly to the Fw 190D conversion (June 1969) if you consider the effort worth it. The machine gun troughs and the fuselage wheel wells must now be filled in. New wells can be carved out 6 mm further forward on the fuselage, or if you do not think you are capable of that they can be painted on in matt black.

Finally, file the wing root fairings flush with the fuselage side. (4) When the wings are dry, clean up and blend in the tips and scribe on the new aileron lines. 'Tack cement' the wings 6 mm further forward than normal and block up these at the tips to the correct angle. Leave this to set.

(5) Assemble the undercarriage parts, including plastic card inner doors, ready painted, and put aside. Clean up the spinner or use one from a Ju 88 kit if you have such a useful spare in your scrapbox.

(6) When the 'tacked' wings have set, fill in the large gap left at the front and fair in the wing roots with plastic body putty. The tail-plane and nose are now fitted. The air scoop is moved forward to its correct position and cemented on. Now add the cockpit detail, seat, stick and headrest, note that if the canopy is open the headrest slides back with it.

(7) This is the best time to paint the fuselage. The wings are left unpainted and can be held while the fuselage is fully finished. After the basic scheme the aerials and step are added and painted.

A mould must be carved for the late style 'blown' canopy and a perspex moulding made. Fit this to the cockpit as required. Now add the undercarriage and paint the wings. Using this method the wings will not be marked by handling.

Obviously, if you make up the Frog Ta 152H you'll be delighted to have avoided all the time-consuming conversion work outlined here. Nonetheless, the Frog model can be improved in several ways by reference to the drawings. Notably, the chord of the wing tips can be reduced slightly by sanding to match the plan.

## Ta 152C

This was similar to the H version but had shorter span wings and hence smaller tips must be fitted. The cannon troughs are accentuated over the engine cowling and the air intake is on the port side of the nose. A glide bomb was designed to be towed by cables from the wing-tips of some aircraft. A drawing is given of the Gotha PS7 bomb and this can be made quite simply from suitable drop tanks and plastic card.

A simpler conversion is the prototype Ta 152C which had standard Fw 190A-8 wings and requires no tip modifications. This was the Ta 152C-0/R11.

## Ta 152B

This aircraft was identical to the Ta 152C with the exception of one of the prototypes. The V-20 was the prototype of the B-5 variant and instead of the standard exhausts had the exhaust stacks shrouded in with the external fuselage shape. The air intake was extended to the front of the nose (see Profile No 94, page 9, for a picture). Note that this had the early style canopy.

Useful information for further models can be found in Profile No 94 and Harleyford's *The Focke Wulf Fw 190*.

## Painting

One point about mottle camouflage. The idea here is to give an effect similar to the full-size aircraft, not an exact 'blob' replica. The full-size aircraft was spray painted and hence will show shades of the basic colour. It is no use at all just painting on 'blobs' of RLM Grau; other colours must be used to blend in the basic shapes. It is not possible to give my methods of shading for any type of mottle but an example of one type may give you the idea.

Imagine an Fw 190 with RLM Grau mottle on the sides with a Dunkelgrün top and the Dunkelgrün merging in oversprays down into the RLM Grau.

(1) Apply the basic Helblau up to the cockpit sill, finishing in a wavy line to prevent a conspicuous ridge being formed.

(2) Using a suitable brush (No 2 or 3 cut down to  $\frac{1}{8}$  inch length) lightly apply Hellgrau in a sparse mottle over the fuselage side and tail unit.

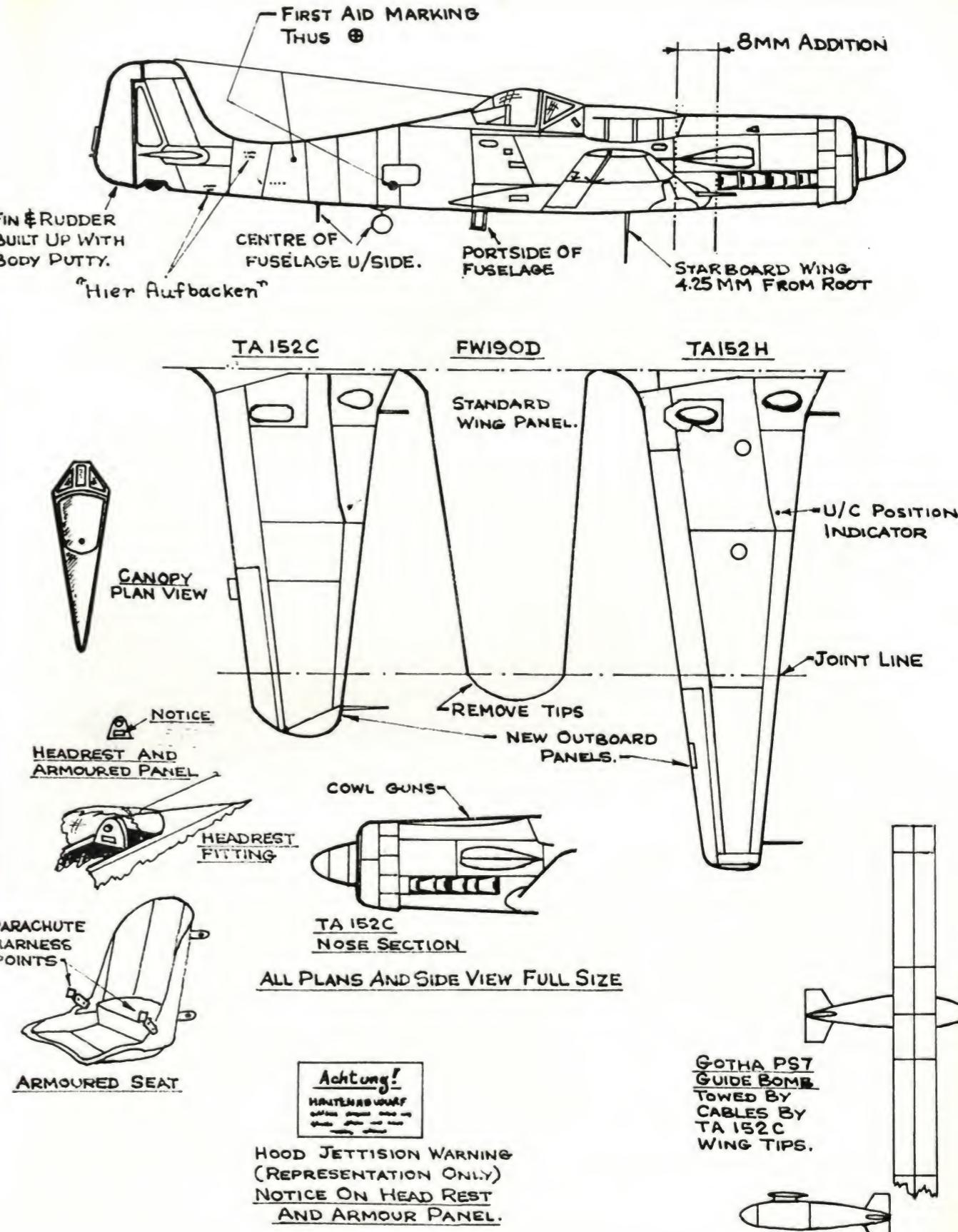
(3) Now clean your mottle brush and apply RLM Grau in the centre of your Hellgrau patches, thinning out towards the edges. Make sure that your mottle gets more intensive towards the fuselage top.

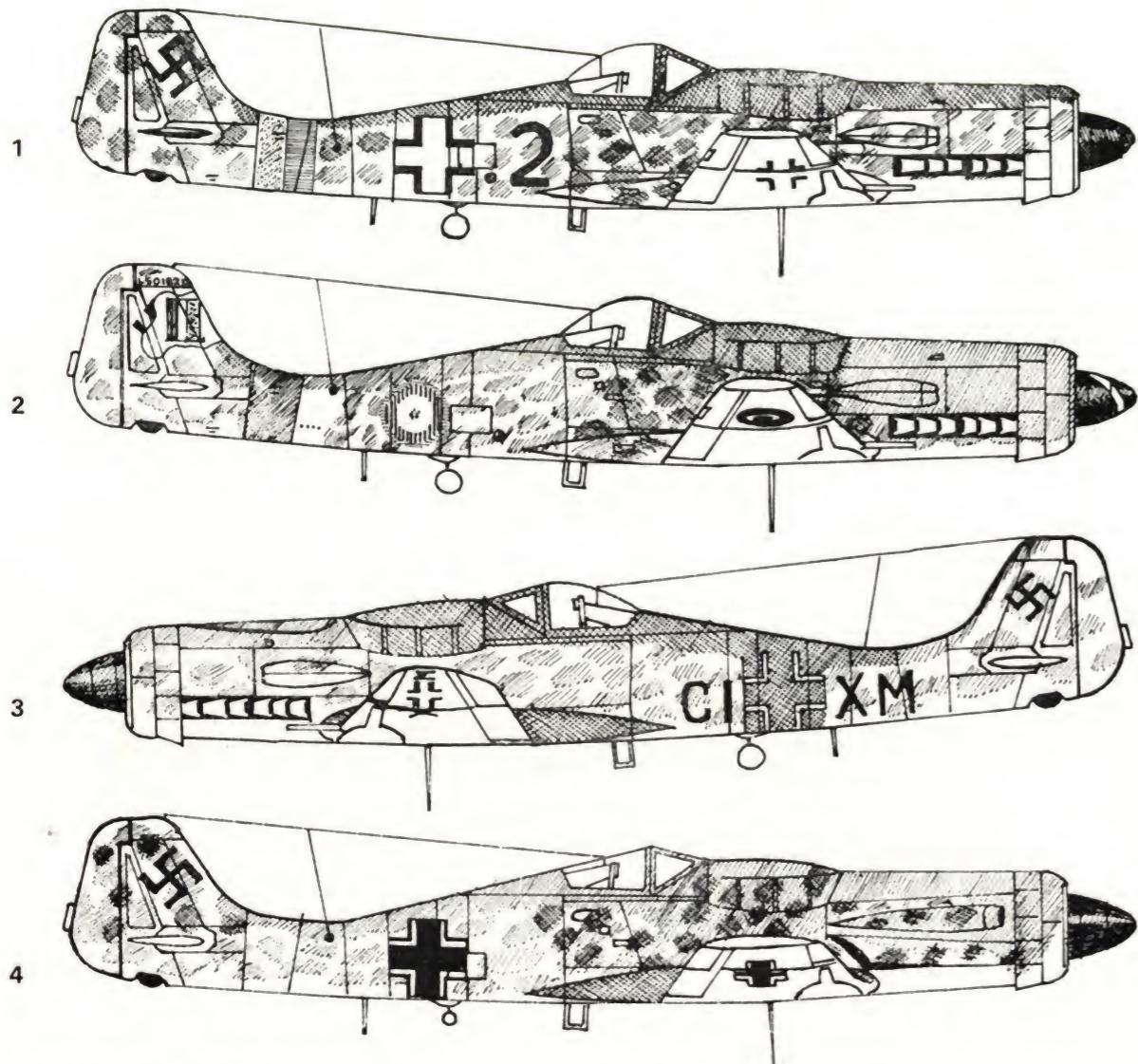
(4) With your mottle brush once more, change to Dunkelgrün and apply it over the RLM Grau but higher up the fuselage sides than the bottom of the RLM Grau. Even higher than this apply the Dunkelgrün in between the RLM Grau as well as over the top.

Now as you get higher, merge in the patches until the Dunkelgrün is a continuous mottle. You should arrange this to occur at the cockpit sill level.

Now mottle the tail unit lightly overall, thickening up in patches, some over, some in between, patches of RLM Grau.

(5) Finally, fill in the top of the fuselage with Dunkelgrün.





#### Colour Schemes and Side Views

THE basic Luftwaffe colour scheme for the aircraft drawn above is as follows:

Undersides and fuselage sides HELBLAU 65.

Wing and tailplane upper surfaces DUNKELGRUN 71/SCHWARZGRUN 70 in 'splinter' pattern.

Fuselage top DUNKELGRUN 71 (with some SCHWARZGRUN 70 on individual aircraft).

Fuselage sides HELLGRAU 76 and RLM GRAU 02 'mottle'.

This was the general scheme of Ta 152's which reached service units.

However, aircraft used as screening force for Me 262 units tended to be finished in the same patterns but with the greens replaced by two greys, DUNKELGRAU 74 and a medium grey 75. Similarly, the undersurface scheme of HELBLAU was replaced by HELLGRAU 76.

(1) Focke Wulf Ta 152H; 2 Staffel/1 Gruppe/JG 301 (Me 262 screening force) Spring 1945.

This aircraft had an RLM GRAU mottle over the fuselage sides. The higher portions of the sides were also mottled with DUNKELGRAU 74 and medium grey 75. This thickened up on the tail surfaces and on the side area over the wing. Undersurfaces were HELLGRAU 76 and Reichsvierteldring bands in yellow/red (yellow, foremost) were painted around the rear fuselage. The spinner and code number (2) were also yellow. Upperwing crosses were white silhouette style, all others black.

(2) Ta 152H-1 captured and exhibited at Farnborough, October 1945, W.Nr. 150168.

The RLM GRAU mottle fades out towards the tail plane and is mixed

with patches of HELLGRAU. The fin flash is placed on a roughly painted patch of HELBLAU and a band around the rear fuselage shows a darker shade of the basic colour suggesting fuselage bands have been overpainted (possibly an ex-JG 301 machine?). The fuselage roundel also shows this phenomenon.

Note that the DUNKELGRUN on the forward fuselage continues down to the exhaust stack line and back to the rear of the air intake. Just to the rear of this the sides are mottled with combinations of RLM GRAU, DUNKELGRUN, SCHWARZGRUN and exhaust stains. The spinner is brick red with a white spiral.

(3) Ta 152 CO/R11, W.Nr. 0007.

This was a Pre-Production aircraft for the C series and had a standard Fw 190A-8 wing.

The colour scheme is basically standard but has a few slight variations. The Swastika is placed on a RLM GRAU ground and the white silhouette style fuselage crosses are on a SCHWARZGRUN ground. The RLM GRAU mottle on the fin and rudder darkens in places to DUNKEL and SCHWARZGRUN. The upperwing crosses are white while those underwing are black, as are the codes C1-XM.

(4) Ta 152V20, W.Nr. 110020.

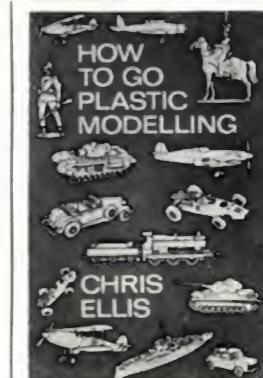
One of three Prototypes for the Ta 152B-5/R11 all weather fighter. This aircraft is even more unusual as it has the exhaust stacks faired in and ejecting together just above the wing root and also the air-intake is extended. The fuselage crosses have no black outlines outside the white portions. The fuselage mottle is standard RLM GRAU with darker DUNKEL/SCHWARZGRUN on the centre section and tail unit.

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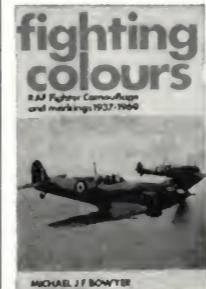
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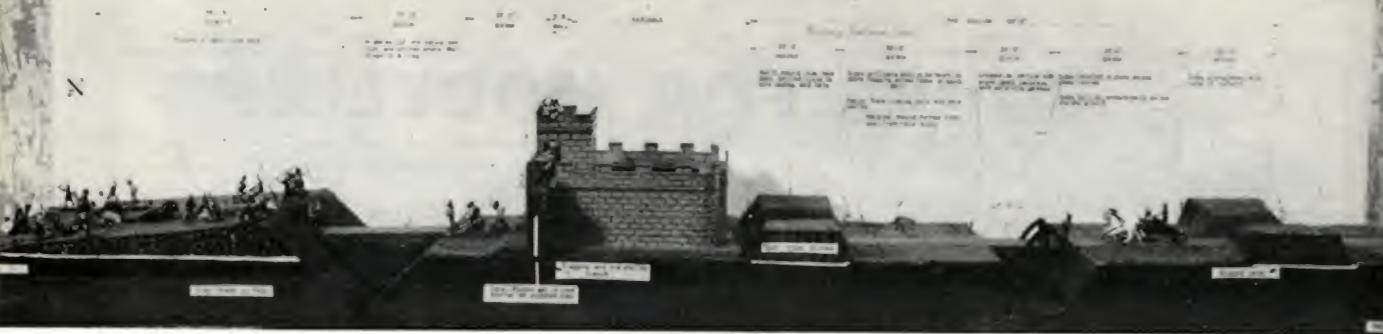


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# Modelling Hadrian's Wall

**A cross-section through a Mile Castle offers a space-saving way of depicting the famous wall—an ideal project for wargames or dioramas.**

**By J. G. Dutton**

THE model shown in the accompanying photographs utilises the Airfix Roman Fort (which is based on the Wall type Mile Castle), together with Airfix Roman and Ancient Briton figures to give a truer impression of scale. In common with the Fort and Figures, a scale of 4 mm to 1 foot (OO) was used for the model, which took the spare time of a month to six weeks to complete.

To ensure historical accuracy a book called *The Roman Wall* by J. Collingwood-Bruce (revised and edited by Professor I. A. Richmond) was obtained through my Public Library and this gave me all the principal constructional and dimensional data required. From this I was able to draw the section to scale. In order to keep the overall length of the model to 4 feet (48 inches) I decided to use the location of Mile Castle 20 at Halton Shields as my 'example of Section' since at this point the north mound of the vallum is calculated to have passed within 5 ft of the south wall of the Fort. (It may in actual fact have been omitted.)

## Construction of the Model

The Section profile was first copied on to two strips of  $\frac{1}{2}$  inch hardboard and these were cut out and attached to a further sheet measuring 4 ft by 1 ft with  $\frac{1}{2}$  inch square moulding, using Sellabond PVA adhesive and panel pins. Similar  $\frac{1}{2}$  inch square strips were attached to within  $\frac{1}{2}$  inch of the section profile to support sheets of  $\frac{1}{2}$  inch polystyrene (ceiling tiles) which form the ground surface. The principal roadway was formed of two 2 inch wide strips of  $\frac{1}{2}$  inch hardboard carried on blocks at ground level height along the centre of the model, these joining up with the fort base. These details are shown on the drawing.

A base for the Mile Castle was made from  $\frac{1}{2}$  inch ply, slightly larger than the fort itself. First I drew the outline of the castle together with the internal buildings

and then cut round this outline with a sharp knife. The top layer of ply veneer was then removed with a chisel, and the wood sanded and then painted to represent roadway and stone flagging. This base was fixed to the model with blocks to give the desired height, being screwed from the underside of the model and through the two internal buildings. The base was positioned so that the leading edge of the wall (North) came a scale 20 ft from the south edge of the wall ditch.

The ground levels, ditch sides and vallum mounds were then made up and fixed in place using the  $\frac{1}{2}$  inch Expanded Polystyrene Sheeting (cut from ceiling tile off-cuts) and a combination of Sellotape and Sellabond PVA adhesive. A day was then allowed for all this glue to dry out.

Since the raw surface of the polystyrene tiles was too rough and too absorbent for the ground, the next stage was to cover the entire surface of the model (with the exception of the mile castle base) with two layers of thin tissue paper soaked in wallpaper paste; similar paper was used rolled into wads, etc., to smooth off and reinforce the vallum mounds. Sides for the ditch causeways were similarly made of tissue-covered polystyrene.

A further period of drying out was allowed and the model then painted in matt green (two coats) with matt grey for the roadway. Part of the ditch was painted grey to represent bed rock, and touches of sand colour and dark earth, etc., were added where required to accompany a constructional note. When all paint was dry, scenic material to represent grass, moorland earth and so forth was sprinkled (via a tea strainer) over the required areas after first brushing them with Croid glue. This is best done by placing the model on the floor over newspaper, surplus material can then be collected up afterwards and used again.

Once the glue has dried, surplus material can be shaken off the model and re-used in a similar way. This scenic material can be purchased at any specialist model railway shop.

The final stage was to draw in Indian ink, lines to represent paving on the roadway and blocks on the ditch causeways. The Castle and buildings were then glued in place using Bostick 1, together with wall extensions to the edges of the model.

White cartridge paper was then stuck on to a further sheet of 4 ft by 1 ft hardboard; held in position against the rear edge of the model and the outline of the profile traced on to the paper. This background was then laid on a table and the profile drawn over using a rule and Indian ink, after which all dimensional and constructional notes added. It was then put back in position on the model and screwed into place using self-tapping screws which give quite a good grip into hardboard. The front edge of the model was finally painted to show geological features (50% imagination in the lack of other data). From the modelling point of view this last stage is optional. My model was made as an instructive display piece; wargamers, however, would really need only the baseboard, not the background sheet as well.

The only part of the model that is not to scale is the thickness of the wall. In actual fact the wall had a thickness of 10 or 8 Roman Feet (depending on

**Heading photo:** General view of the whole model, with Ancient Britons attacking the fort from the north (left) side. **Below:** Roman Auxiliaries attack the Britons from behind. **Bottom:** Roman chariot at gateway on causeway across Vallum Ditch.



Broad or Narrow Wall; refer to handbook) which in the latter case is about 9½ ft Linear; the overall thickness of the Airfix model is about 20 mm (at the wall walk, North Edge) which scales to about 5 ft Linear.

Although this is neither the time or place to embark on a discussion of the historical and architectural merits of the Wall, I would point out that anyone interested in these aspects can do no better than by reading the handbook referred to above. There is also an interesting article on the Wall in Chapter 3 Volume 1 of the weekly *History of the English Speaking People* (based on Churchill's text) published by Purnell. This issue also incorporates a list of recommended further reading. I have always found public libraries very helpful in locating books.

I made this model for two reasons, firstly because of my interest in Roman Britain and secondly because I enjoy the occasional spot of modelling, which I find relaxing. My main hobby is photography and now that I have photographed the model I would be prepared to loan it to a museum or teaching body if they were interested, and any requests of this nature can be sent to me via the Editor of this magazine—borrowers to arrange transport themselves from the Birmingham area.

## Airfix Models and Painting

Since Roman Legionaries were not used to garrison the Wall, the Airfix Romans were modified to represent auxiliary troops. The shoulder 'flaps' and belt 'aprons' were cut off with a modelling knife together with the ridge of the helmet; the Legionary pattern shields were dispensed with and new shields were made of 8 mm card discs with a central hole locating on the arm 'pip' of the figures thus forming a shield boss. No modifications were necessary to the Ancient Britons. For painting I used both Airfix and Humbrol paints as available.

**Top:** Romans emerging from the fort to engage the attacking Britons. **Below:** South side of the fort showing sentries at the gate and archers on the wall. **Bottom:** The Roman counter-attack being directed by an officer on the tower.



### Colours for figures:

Romans	Paint	Part	Ancient Britons	Paint
Flesh Pink	Airfix M7	Face, Arms, Legs	Flesh Pink	Airfix M7
Brick Red	Airfix M1	Tunics	Green	Airfix M17
Silver	Humbrol	Tunics	Green (Matt)	Humbrol
Bronze	Airfix G15	Tunics	Yellow (Matt)	Humbrol
Gold	Humbrol	Armour,	Red (Matt)	Humbrol
Black Gloss	Humbrol	Sword Blades	Silver	Humbrol
Matt Black	Humbrol	Helmets	Silver	Humbrol
		Helmets	Copper	Humbrol
		Belts, Boots, Harness	Gold	Humbrol
		Weapons	Black Gloss	Humbrol
			Matt Black	Humbrol

The colours for the fort are basically those shown on the illustration on the box that Airfix supply the kit in:

Part	Colour
Walls, Stone Mortar between Stones	Light Grey
Dark Grey (almost Black)	Dark Grey
Wooden Supports and Doors	Dark Brown
Sides of Interior Buildings between wood	White
Roof of Smaller Building (Tiled)	Light Brick Red
Stone Archways round Gates	(see Roman Tiles in Museums)
Wall Walk Extension outside of Fort	



*Continued on page 378*



Above and opposite page: Photos of the complete model show the realistic effect achieved with very little alteration to the Airfix Motor Racing Set figures.

## MODEL SOLDIERS



**Conversions in 54mm scale... by ROY DILLEY**

OPINION amongst model soldier collectors varies as to the best way of presenting the finished miniature. Methods range from the 'one man on his own tiny rectangular base' idea, to the positioning of many figures in lavish and properly landscaped dioramas, and most collections include examples of several types of presentation styles. Space available for display purposes is one of the more important factors in making a decision on what method to adopt, and clearly a large diorama would be likely to lead to a certain amount of domestic tension in all but a small percentage of private homes.

However the grouping of a few figures on a common base, with perhaps a little scenic embellishment, is within the limits imposed by most household space requirements, and, without doubt, such groups can be the means of conveying a greater sense of realism to miniature figures. Even the very finest of individually mounted subjects is by definition isolated; I am not of course referring to the standard commercially produced 'toy' soldiers, whose bases are usually as inconspicuous as possible, and exist merely to enable the models to stand up. On the other hand, two or more figures on a common base allow, in the interaction of one with another, for the creation of a 'situation', thereby adding conviction to the scene.

For example, we have all seen the beautifully posed, impeccably finished model, poised with eyes glaring and sword viciously slashing at—what? An element of conjecture must arise in such a case: is he really fighting, or training, or even acting? Yet one has only to add the wounded oppo-

nent shrinking back in anticipation of the blow, or sturdily parrying with his own sword, for a situation to have been created which suspends conjecture and establishes realism. A similar result can, I admit, be obtained by using figures individually mounted but displayed together as a group, but the separate bases detract from realism, and so make the final effect less convincing. The great drawback to the singly mounted piece is its very isolation, and broadly speaking, the more extreme or violent the action depicted, the less realistic and thus effective it becomes.

All that I have said so far is relatively unimportant if the purpose of a collection is merely to illustrate details of uniform and/or equipment, for in such a case the detail of a figure is of greater account than its conveyance of an impression of life. However, more and more collectors are seeking to simulate real-life situations with their figures and accessories, and for these enthusiasts, particularly those with a limited amount of display space available, the small group, or in the current idiom 'mini' diorama, is extremely valuable.

#### COLOURING DETAILS

##### Conversion 1

**Service Dress Cap:** Khaki, with brown leather chinstrap and bronze badge.  
**Battle dress:** Khaki.  
**Duffel Coat:** Beige with wooden toggles. This was an example of 'unauthorised' order of dress.  
**Shoes and gloves:** Brown.

##### Conversion 2

**Field Service Cap (Coloured):** Many different colours, according to Regiment. Figure used the dark green of the Rifle Brigade.  
**Jeep Coat or Jacket, Reeler:** Light Khaki.  
**Trousers:** Khaki.  
**Shoes:** Black for Rifle Brigade, but could be brown for other regiments.

##### Conversion 3

**Beret:** Khaki, dark blue, or black according to regiment.  
**Battle dress blouse:** Khaki, with badges of rank, shoulder titles and arm of service strip varying according to regiment. The model represents an officer of the Royal Armoured Corps, with yellow edged rank badges, yellow shoulder titles with red lettering, and yellow and red arm of service strip. The divisional sign is a black bull on a yellow background (11th Armoured Div).  
**Trousers:** Khaki.  
**Shirt and tie:** Pale khaki.  
**Shoes and gloves:** Black or brown according to regiment.  
**Dog:** Colour according to your own preference.

British officers are depicted as they might have appeared when enjoying a few days respite from the conflict in NW Europe early in 1945. At that time it was quite common for short leave periods to be spent in Brussels or even Paris, and here we see two officers enjoying the company of a local inhabitant, whilst the third records the incident for posterity, perhaps on a captured Leica! Various orders of dress are shown, and modellers can vary details of headgear, badges, shoulder-titles, divisional signs, etc., to suit themselves. The base is one of the simplest that I could devise, and merely represents an area of city pavement. My son Anthony, aged 11, constructed his own version of this scene by following the steps that I describe below, and he achieved a most creditable result without undue difficulty.

#### Conversion 1

This is a standing officer offering a tit-bit to a dog. The figure required is an Airfix



Jacket under duffel coat. Trimmed to battle dress blouse



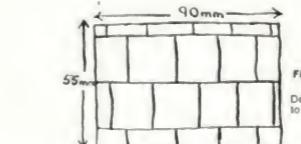
Sharpen detail of edges of coat as indicated by arrows



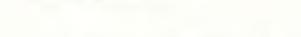
Cut detail into both arms at point indicated by arrow. Note side view of FS cap



Detail of front view of FS cap



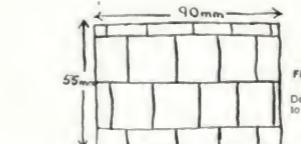
Rank badges  
Shoulder title  
Medal ribbons (if any)  
Divisional sign  
Arm of Service strip



Beret shaped from plastic putty. Note position of badges, and headband worn level



Drive pin up through base to attach dog



Detail of base: lines scribed to represent kerb and pavement

sists of carving the arms and hands to shape, and sharpening up the camera and case detail (Fig 3). Add a little plastic-putty to the centre of the cap, and when dry gently sand down to the FS cap shape (Fig 4). Check all operations, and the figure can then be painted.

#### Conversion 3

This is the kneeling officer with dog. Figure required here is the Airfix kneeling mechanic.

Clean off mould flash, and sharpen up the face details. Now cut the overalls to the shape of a battle-dress blouse (Fig 5), with lapels, waist, and collar and tie. Add lengths of plastic card strip, to form shoulder straps. Apply a blob of plastic putty to the head, and when thoroughly dry shape it down to make a beret (Fig 6). Undercoat and paint.

The dog is taken from the Britains' Farmyard Range, and is attached to the base with a length of household pin and UHU or Humbrol Universal adhesive, before coating with Unibond and painting (Fig 7).

Cut the base from .060 inch plastic sheet to dimensions of 90 mm x 55 mm, and scribe the surface to represent curb-stones and a segment of pavement (Fig 8). Fix all figures to the base after painting.

I have deliberately kept this exercise as simple as possible to show how even a few figures, suitably posed can convey an air of realism. In a future article we shall attempt a more complex group, but in the meantime work out a few more simple scenes using your own ideas, and varying the arrangement to suit yourself before fixing down the figures.

#### N Gauge — from page 346

therefore, in adopting a scale is width. Peco believe that the model should be to a constant scale, whatever the scale is, and this is what their models are and why they had to first devise a scale which could be worked to from the width, length and height point of view. Even so, in using the 1:148 scale, a locomotive and coaches are still smaller than most of the Continental counterparts and because of this it is still impossible to use the average motor made by Arnold, Minitrix, etc, in a British prototype and this is why Peco have so few British locomotives on the market at the moment, and the very reason why the motor and drive of the 'Jubilee' model had to be in the tender. Even so, it is a tender for the larger engines only and cannot be used by the smaller prototypes.

Below: New model from Peco's 1971 N gauge range is a fine replica of a typical British branch line engine shed. Other units can be joined on to it to form a shed large enough to suit any layout. Four are shown here.



# The Char B1

## FAMOUS FRENCH TANK OF THE 1940 PERIOD

Described by Raymond Surlémont

In order to provide a successor for the wartime French Schneider and Saint Chamond tanks of 1916-17, General Estienne, the 'father' of those tanks, undertook the design work on the 'Char B' project. Three mock-ups were built to his plans by the firm of Atelier de Construction de Rueil and were submitted for examination in 1925. In 1926, the French Department of Defence promulgated a new programme establishing three categories of tanks: a light tank under 13 tons, a battle tank from 19 to 22 tons, and a heavy tank up to 70 tons. By this time, the first and third types were represented respectively by the established Renault FT and the FCM 2-C, both wartime designs. The basic Char B design could thus be placed in the middle category.

A contract was placed in March 1927 with the firms of Renault, Forges et Chantiers de la Méditerranée (FCM) and Forges et Acieries de la Marine et d'Homécourt (Saint Chamond) for the production of three prototypes based upon the previous studies, the whole project remaining under the control of the Atelier de Construction de Rueil (ARL). The three vehicles, delivered and tested between 1929 and 1931, weighed about 25 tons and carried a crew of four. They had two fixed machine guns, two other machine guns in the turret, and a 75 mm gun in the front of the hull. The power plant was a six-cylinder engine of 180 hp.

Production of the new tank started after 1934 as the 'Char B1', but incorporated substantial changes, including a 47 mm anti-tank gun housed in an APX1 turret instead of the two machine guns, and a more powerful 250 hp engine. As such the B1 was, mechanically speaking, a very advanced design thanks to its Naeder steering-aiming unit, a product of the Batignolles-Chatillon company, employing a double differential system with a hydrostatic unit in the steering drive. The Naeder steering unit gave an infinite number of turning radii, enabling the driver to line the fixed 75 mm gun on its target. The tank ran on a Holt type American tractor gear modernised by the FCM engineers with a combined coil and leaf spring suspension. The overall tracks had barred sole plates and were driven off the rear sprocket. Other points of interest were self-sealing petrol tanks, a bilge pump driven off the engine, a well designed pressurised lubrication system through grouped lubricators, a gyroscopic compass and several fireproof bulkheads.

After the delivery of about 30 vehicles of the B1 type, a new requirement for an increase of the armour thickness from 40 mm to 60 mm was introduced and subsequently the B1 became the B1-bis. The original turret was changed for a thicker APX4 turret, and the 16.5 litre strengthened aircraft engine was boosted to 307 hp at 1900 rpm.

Although spread among several companies, Renault, Saint



Above: A Char B1-bis knocked out in the fighting in France in June 1940 (Bellona-Warpic). A dead side view can be seen in the lower photo opposite page.

Chamond, Schneider and FCM, under the parentage of the ARL, production of the B1-bis was very slow. Even after the outbreak of war, in September 1939, deliveries to fighting units never exceeded from 13 to 15 tanks a month, though 173 machines were completed between September 1939 and April 1940. By this time, the tank was already obsolescent in overall design. It was too sophisticated mechanically and consequently too costly to produce. Servicing was difficult, and the crew had to be highly trained specialists. The crew of four included the commander who was also the gunner and loader in the one-man turret; the driver was also the gunner for the hull-mounted 75 mm gun. A loader, who in combat was kept fully occupied in fitting the independently stowed fuses on 75 mm shells, and a wireless operator completed the badly distributed crew, all of whom had too many duties for tactical efficiency.

In 1939, the ARL led the design of the B1-ter, the last development of the series. This variant was an endeavour to overcome the defects apparent in the B1-bis. The 75 mm gun was provided with a limited traverse; the fighting compartment was made roomier to accommodate a fifth crew member; a diesel power plant provided 350 hp and the armour thickness had a further increase up to 75 mm. But the pressure of events interrupted the production of the B1-ter after only five machines had been completed.

In May 1940, a total of 387 B1 and B1-bis were in service in the tank battalions of the French Army's *Division Cuirassées de Réserve* (DCR) and various independent units. Each battalion had 34 tanks and two battalions formed a *demi-brigade de chars*. The B tanks went into battle under bad conditions and they suffered from their short radius of action. The Germans captured a number of them and Rheinmetall Borsig converted a few of them as 10.5-cm leFH 18/3 (St) auf Geschützwagen B2 (f)\*, in which the main armament in the hull was removed. Some B1-bis became flamethrower tanks by substituting a flamethrowing apparatus for the 75 mm gun. A few B tanks fell again into French hands in 1945 and they enjoyed a last blaze of glory in helping in the reduction of German pockets of resistance in the Atlantic Wall. Two B1-bis are still in existence: one is preserved at the RAC Tank Museum, Bovington, and the other is at the French Cavalry School at Saumur.

The Char B1-bis was a major inspiration for the British A20 'shelled area' tank of 1939, both in shape and armament. The

\*B2 was a wrong designation allotted to the B1-bis by German Intelligence.

Below, left to right: Char B1-bis captured by Germans and fitted with flame projector in place of 75 mm hull gun. Note German camouflage and markings. Char B1-bis converted to 10.5 cm LeFH 18/3 (St) by Germans (Imperial War Museum). Standard Char B1-bis on delivery trials, 1940 (ECA).



French 75 mm gun was considered also for mounting in the hull front of the A20. The A22 (Churchill) evolved from the A20, still clearly exhibiting the slab sides and suspension (and originally a hull gun) from the French vehicle.

Right: Another German conversion was the Fahrschulwanne, a captured B1-bis with turret and hull gun removed used for driver training (Imperial War Museum).

### Technical specification of Char B1-bis

Crew	: 4
Weight, combat loaded	: 32 metric tons
<b>Performance</b>	
Speed, maximum	: 17.4 mph (28 km/h)
Maximum gradient	: 40°
Fording depth	: 4' 10" (1.47 m)
Trench crossing	: 9' 0.5" (2.75 m)
Step	: 3' 10" (1.68 m)
Range	: 10 hours
Power to weight ratio	: 9.5 CV/ton
<b>Dimensions</b>	
Length, overall	: 20' 11" (637 cm)
Width, overall	: 8' 21" (250 cm)
Height	: 9' 2" (279 cm)
Ground clearance	: 1' 7" (48 cm)
Track on ground	: 17' 2" (523 cm)
Track width	: 8.5" (213 mm)
<b>Mechanical details</b>	
Engine	: one Renault, aero type, in-line 6 cylinder, 16.5 litre water-cooled, developing 307 hp at 1,900 rpm
Gearbox	: sliding gear: 5 F, 1 R
Steering	: Naeder steering unit with double differential helical and leaf springs, with bumper pads
<b>Armament</b>	
One 75-mm SA.35 gun	: in left front of the hull; no traverse; elevation: 25°; depression: 15°
One 7.5-mm machine gun	: fixed, below the 75-mm gun
One 47-mm SA.35 gun	: in one-man turret
One 7.5-mm machine gun	: co-axial
<b>Ammunition</b>	
75 mm gun	: 74 rounds
47 mm gun	: 50 rounds
7.5 mm machine guns	: 5,100 rounds
<b>Vision arrangements</b>	
2 periscopes	
3 telescopic sights	
4 episcopes	
2 vision slits	
<b>Communications</b>	
One ER.35 telegraphic set plus flags	
<b>Armour</b>	
front and side	: 60-mm
rear	: 55-mm
bottom	: 20-mm
turret	: 60-mm



### Vision arrangements

- 2 periscopes
- 3 telescopic sights
- 4 episcopes
- 2 vision slits

### Communications

- One ER.35 telegraphic set plus flags

### Armour

front and side	: 60-mm
rear	: 55-mm
bottom	: 20-mm
turret	: 60-mm

period. This is a most valuable and well balanced book, and we cannot recommend it too highly.

### Air Facts and Feats.

Francis K. Mason and Martin C. Windrow, *Guinness Superlatives Ltd, 24 Upper Brook Street, London W1*.

£1.75 (15p postage).

THIS is a superb book which deserves a place on the bookshelf of everyone interested in aviation. Almost every conceivable aspect of aeronautics is covered, which makes the book an invaluable work of reference, as well as something worth frequently browsing through. In addition to the main text, there are many charts and tables which give useful details on such things as the World Air Speed Records. Excellent photographs in colour and black and white add further interest to this book, which is very good value indeed.

### The RAAF and RNZAF in the Pacific.

René Francillon.

Grumman TBF/TBM Avenger.

B. R. Jackson and T. E. Doll.

Aero Publishers Inc, Calif, USA, and available outside USA from W. E. Hersant Ltd, 228 Archway Road, London, N6.

£1.75 each (post paid).

THESE two books follow the well-known Aero series format, the first a picture history, the second a fairly well detailed monograph of a famous aircraft type complete with colour scheme artwork. The production and quality of each book is excellent and the first will certainly be of absorbing interest to any World War 2 aircraft enthusiast. Coverage is extensive and many rare types and rare pictures are shown. The one criticism is the brevity of

Continued on page 378

### AVIATION

#### 2nd Tactical Air Force.

Christopher Shores.  
Osprey Publications Ltd, PO Box 25,  
707 Oxford Road, Reading, Berks.  
£4.00.

WHILE other books in the past have touched on the operations of 2nd TAF in the crucial 1944-45 period, this must be one of the first, if not the first, which sets out to be virtually a definitive history. It's a large 300 page book, beautifully produced, with scores of pictures and a text which relates operations on more or less a day by day basis. Nearly all the pictures should be new to the average reader and there is the added attraction of eight pages of colour art in the usual Osprey fashion showing typical camouflage and markings on 2nd TAF aircraft. Appendices give full listings of wings, squadrons, codes, and numbered airfields and extemporised airstrips used in operations in Europe. A useful idea is a running footline throughout the book giving the month covered by the text above, which should make it easy

March, 1971

# Single Fin Liberators

A postscript to a modelling article from our August 1970 issue

BY JAMES D. OUGHTON

ALAN Hall's conversion scheme for a 'Liberator Transport' in the August issue is certainly for advanced modellers and he deserves great credit for his work, as does Richard Gardner for his drawing. I know only too well that anyone trying to produce an accurate drawing or model of any version of the Liberator—particularly those versions used by the RAF—is up against it, for I have been, over the past six months, assembling data for a book on the British and Commonwealth use of the Liberator and despite much valuable assistance from men expert in their field in this country and the USA, I still am in need of further basic data.

I think that Alan Hall and Richard Gardner have—quite understandably—confused two types of aircraft—Liberator AL504 and the Liberator C Mk IX. AL504 was a 'unique aircraft' in the Liberator series; she started life in 1941 as an LB.30 with RAF Ferry Command, gained the name *Commando* after flying Lord Louis Mountbatten home from Washington for the final preparation of commando and other forces for the Dieppe action, and was



used by Winston Churchill for a number of long range flights, piloted by Captain W. J. Vanderkloot. Churchill last flew in AL504 on February 7, 1943, when she brought him home from Algiers. Early in 1944 *Commando* was flown to the USA and went down to San Diego for major modifications which amounted to a re-build.

The then-new single-fin versions of the Liberator had already flown when 504 arrived on the West Coast; there were two basic programmes—one for the USAAF, which had resulted in the re-building of B-24D serial 42-40234 with a single fin, Emerson nose turret and 1,350 hp Twin Wasp R-1830-75 engines with improved turbo-superchargers—this aircraft was designated the XB-24K and made its first flight on September 1, 1943. After trials, the XB-24K was returned to San Diego in May 1944 for modifications including a 'production' tail unit and then the definitive version went into production at the Ford (Willow Run) plant as the B-24N.

The Ford prototype XB-24N was accepted by the USAAF in November 1944 and the first of seven service-test YB-24Ns was taken on charge in May of the following year, but the end of the War brought cancellation of the plans to build 5,168 B-24Ns. The B-24K and N series comprised the sum total of USAAF single-fin Liberators, and the fin was of lower aspect ratio, smaller area and had a more angular outline than that of the US Navy versions.

Second programme was sponsored by the US Navy, and from a contract placed in May 1943 came the PB4Y-2 Privateer (originally named Sea Liberator) with an extended fuselage, modified armament and internal equipment, and a larger single fin and rudder. The first of three prototypes made its first flight on September 20, 1943.

The interesting set of rare pictures on this page comes from reader S. Broomfield whose father was in the crew of AL504 *Commando*. The occasion is thought to be the Algiers mission of February 1943. Prime Minister Churchill can be seen talking to staff officers in a couple of the views. AL504 at this time was still in original condition with twin tails. Colour scheme was dark green/dark earth and black in usual RAF heavy bomber style. Commando, stars, and serial were white.

and contracts were eventually placed for production aircraft and a transport version, the RY-3. At one time the USAAF had a corresponding version—the C-87C—on order, but this was cancelled. The Navy RY-3 aircraft were produced within the early phases of the PB4Y-2 programme, and the RAF were allocated a total of 111 RY-3s, for which the British designation was Liberator C Mk IX.

AL504 acted as a prototype for the RY-3 series—a C-87 nose was fitted and a 7 ft fuselage extension added ahead of the wing—in addition, of course, to the modified rear fuselage and tail unit. However, AL504 retained her LB.30 wing, fuel system and power-plant—the latter being Twin Wasp R-1830-S3C4-G engines modified in her previous service to the military R-1830-33 ratings.

Convair built another single fin derivative of the main B-24 line—this was the USN R2Y-1 (Convair Model 39), flown for the first time on April 15, 1944, about six weeks after the converted AL504, and remaining a one-off prototype. It was later offered on the civil market as the 48-seat 'Liberator Liner' but was not taken up.

*Commando* itself went back to 45 Group Communication Squadron at Duxford and was eventually lost in the Atlantic on March 27, 1945, whilst carrying—among others—Commander R. A. Brabner, Under Secretary of State for Air. Winston Churchill never flew in AL504 after she had been converted.

Having—I hope—cleared up the outline of single fin Liberator development, perhaps I can point out one or two items in the conversion scheme as outlined by Messrs Hall and Gardner:

(1) As AL504 retained its original wing

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## Anson T. Mk 1

A FURTHER CONVERSION FROM THE POPULAR AIRFIX KIT, THIS ONE IDEAL FOR BEGINNERS

by Alan W. Hall

AFTER last month's complicated Anson T20 conversion using the Airmodel kit and parts from the Airfix Anson, I have now built a much simpler version of this aircraft, more suitable for beginners. It consists of deleting the turret provided in the Airfix Anson kit and making a glazed nose from acetate sheet—an ideal subject for the newcomer, involving an easy moulding subject and the opportunity to try out those attractive fillers and body putty products now on the market.

The Anson T Mk 1 was far better known in the RAF and Commonwealth Air Forces as a trainer than its Coastal Command equivalent. Many aircrew learned their trades on this aircraft and it was the mainstay of observer, navigator, signaller and some air gunnery schools. The glazed nose did not appear until late in the war and then only on certain aircraft. Those used at No 3 Air Navigation School, RAF, Thornhill, Southern Rhodesia, in 1945-46, for example, were a mixed bunch. Some had the glazed nose, others (eg NK478 'ZH') did not. Similarly some were camouflaged, whilst others such as MG798 'ZD' were silver. This particular example also had a glazed nose and did not carry the D/F loop on top of the fuselage behind the astrodome.

Whatever your choice of model, most Ansons had the turret taken out and faired over. Any communications or training aircraft serving after the war had this modification which was gradually introduced as aircraft went in for major servicing. It is odd to note that all of them retained the housing for the port machine gun below the pilot's cockpit which was covered over with thin sheet metal and almost invariably let in a blast of cold air round one's legs when sitting in the left-hand seat.

The Airfix Anson kit is an easy one to build. It has one major fault in that the fuselage forward of the cockpit is not deep enough and this will have to have added body putty to bring it up to the correct dimension. Construction details apart from that are as follows.

**STAGE 1** Before putting the two fuselage halves together a certain amount of work has to be done inside the cockpit and cabin areas of the model. The 'glasshouse' transparencies must be painted on the *inside* with diagonal lines to represent the fuselage construction members which come close up to the transparencies and appear in photographs to be part of the windows themselves. I chose dark green for this job and matched it with some interior painting and detail work. The radio operator's equipment has to be set up in front of the rear seat and navigator's table behind the pilot lengthened and painted. At the rear of the cabin I cut vertical formers to go in front of and behind the turret opening. Across the top I added another piece of plasticard to fill the main area and left this to set. The whole is filled with body putty later.

**STAGE 2** The cabin windows are stuck in place and the fuselage halves joined after the paint has dried. Once this joint has set the gap left round the turret is blanked off with a large amount of body putty to come level with the top fuselage line. I also filled the forward transparency on top of the fuselage closest to the cockpit with plasticard. The wings and ailerons are cemented but set aside and not joined to the rest of the model until much later. I also left the undercarriage off the model even though the instructions show that this should be put in place when sticking the wings together. The reason is to allow easy access for



This Anson Mk 1 of No 3 Air Navigation School in 1946 forms the subject of the drawing on the next page. Note the yellow T-bands over camouflage finish.



Top: Initial stage is blanking off the dorsal turret position and adding interior detail and transparency framing. Above: Assembly proceeding, with nose sawn off and balsa former for new nose transparency shown at left.

wing root filling and also not to make a mess of the wheels which have to be painted as an integral part of the construction. Most Anson models need a lot of body putty along the under fuselage seam as this does not join properly. Similarly more will have to be added to the top of the fuselage nose to adjust the height of the cross section immediately in front of the canopy.

**STAGE 3** When the fuselage has dried out properly a start can be made on getting the fuselage contours right. By using a coarse file and then decreasing thicknesses of wet and dry paper this was achieved. The port side gun port was filled with body putty and also rubbed down. Once complete the wings and tailplanes can be attached, joints rubbed down and filled and the whole model left aside to dry out for 24 hours.

**STAGE 4** The nose of the model is now cut off. Lay the fuselage on the plan and mark off the dimensions needed to make the cut before using the saw. Then lay the nose of the aircraft on a piece of obechi, later to be used as the female mould and draw round it. Cut away all the interior of this marked area and use it for making a template of the male mould. The latter was made from balsa rough shaped with a knife and then sanded to fit the hole in the obechi perfectly. The side view contour was achieved by comparing the balsa shape with the plan. Being one of the simplest male and female moulds to make there should be no difficulty in getting not only the correct outline but a cross section that when the acetate sheet is moulded a perfectly fitting result should be obtained. Use Bulldog clips to hold the square of acetate sheet to the female mould allowing at least one inch of the acetate all round the mould itself. Heat the acetate gently under the gas or electric stove and plunge the male mould through female one when the material gets pliable. It is an advantage though not absolutely essential to fill the grain of the male mould before starting work. This provides a harder, smoother surface from which the canopy can be produced. When complete, remove the male mould from the canopy and cut either by knife or fine-toothed saw the parts needed. You should have moulded the depth of the canopy slightly deeper than absolutely necessary so that a clean cut can be achieved. The canopy is then attached to the model's nose by Humbrol Universal adhesive, UHU or similar cement.

An astrodome behind the cockpit is also needed and although one could find a spare item from the bits and pieces box it may be necessary to mould one. The same methods are used as already described. Before gluing the astrodome in place a hole will have to be drilled in the top of the fuselage through the small piece of plastic card which replaced the front square transparency in this area. It is advisable not to stick the nose canopy in place before this has been done so that any plastic dust made by the drill can be extracted first.

**STAGE 5** Engines from a Frog Oxford kit were used to replace those in the Airfix Anson. You will find that they fit perfectly and no adjustments are necessary. The main undercarriage and tail wheel can now be cemented in place, the radio mast and a D/F loop from the spares box will follow. Other small items such as an SBA aerial and the trailing aerial guide under the fuselage close to the trailing edge of the wings can be made from stretched sprue. One other important piece missing from the kit is the mass balance and aerial terminal on top of the fin and rudder. Here again stretched sprue came in handy. Finally a whip aerial on top of the fuselage (made from a toothbrush bristle) and the undernose pitot head should be put in place.

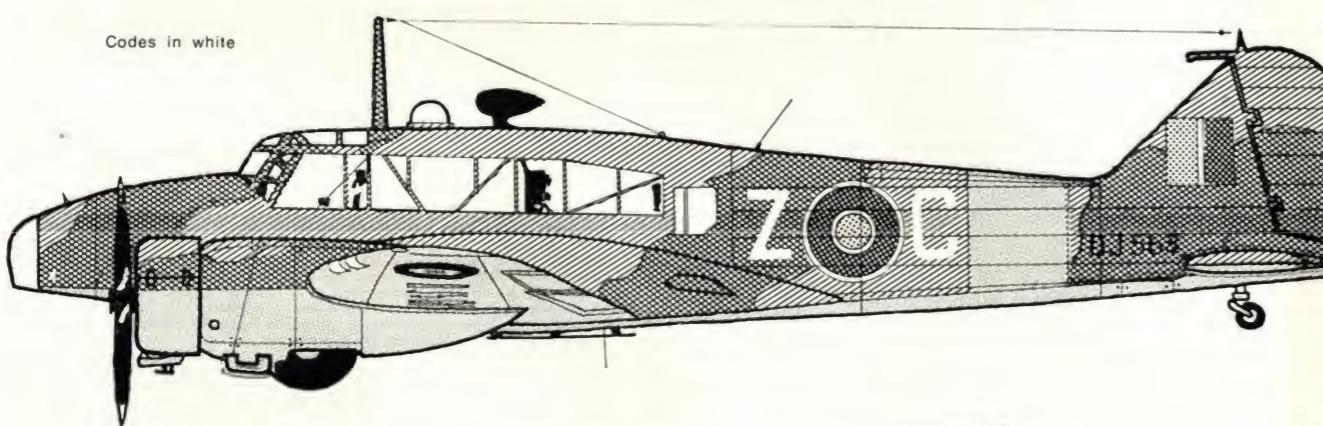
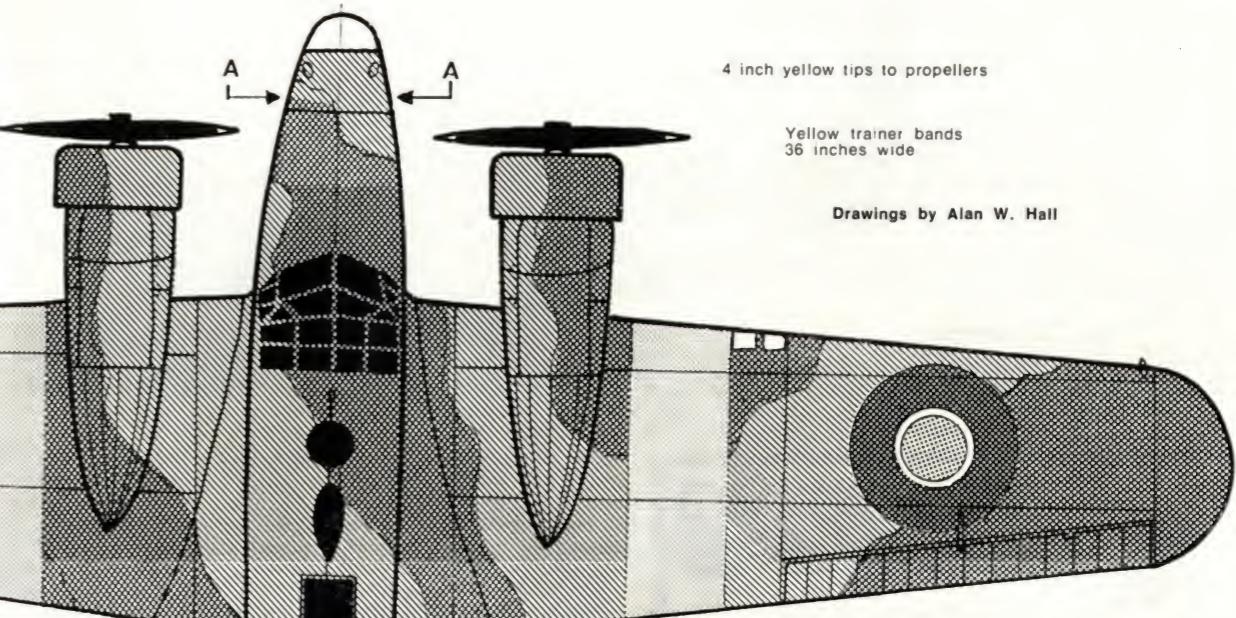
Text continued on page 378  
Scale drawings next page



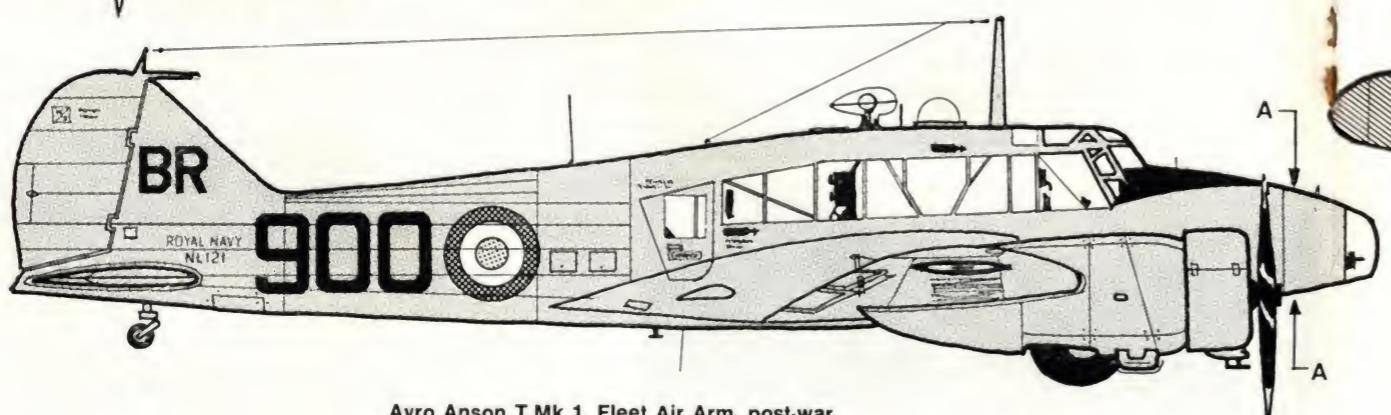
**Above:** Adding the Oxford cowlings. Note how the turret space has been plugged and smoothed over. Also visible is the new nose transparency.

Fuselage serials on aircraft below, 8 inches high

**Avro Anson T.Mk 1,  
No 3 ANS, Thornhill, Rhodesia,  
1946**



Underwing codes on above aircraft



**Avro Anson T.Mk 1, Fleet Air Arm, post-war**

All codes and stencils black

Note transparent D/F Loop fairing

Extinguisher markings red



Scale: 1:72

**Right:** Adding the undercarriage. The use of plastic putty as a filler can also be seen.





**Above:** Wellington II W5379 prior to serving 12 Sqn as PH-O. Note the wavy line along the starboard wing leading edge and the larger diameter fuselage roundel. She completed 15 sorties and was lost on October 10, 1941.



THE fighting over France mercifully left Bomber Command fairly intact, although 2 Group's Blenheim Squadrons had suffered sorely, whilst the Battles of the AASF had been decimated. Remnants of the latter struggled home and lodged on stations from Stradishall to Lincolnshire. They were either subsequently absorbed into 2 Group—like 105 Sqn—or joined a new No 4 Group and continued to use Battles including some which survived the fighting in France. Heavy bomber squadrons less affected by the recent slaughter continued the new offensive under way against Germany.

Basically Bomber Command was now raiding three types of targets—oil refineries and synthetic oil plants, power installations and the rail network. Hampdens, Wellingtons and Whitleys were engaged, whilst by day small numbers of Blenheims, relying on cloud cover for protection, set out for similar targets.

Rapid increase in the Luftwaffe's strength on captured airfields in France and the Low Countries soon attracted the attention of the Command. Blenheims then made day and later night raids on these tempting targets, but with only limited results.

By night the heavies were despatched to Germany in relatively small numbers, and found difficulty in locating targets on dark nights and in the hazy conditions met over industrial areas. Operations by No 77 Squadron flying Whitley Vs were typical. In June, the squadrons attempted to bomb oil targets at Gelsenkirchen, Sterkrade and Hanover, installations which were to attract Bomber Command almost to the end of the war. The infamous marshalling yards at Hamm, such a feature of the 1940 BBC news reports, were frequently raided, particularly by Hampdens of 5 Group. Duisburg and Friedrichshafen also figured on 77's target list which, in July, included Wilhelmshaven, Kassel and Bottrop.

The battle cruiser *Scharnhorst* presently lay in Kiel. On July 1/2 a Hampden of 83 Sqn dropped the first 2,000 lb bomb there, the heaviest weapon yet used by the Command.

Hampdens of 5 Group were, on August 12/13, despatched against another target that was to be frequently attacked, the Dortmund-Ems Canal. Flying P4403 was Flt-Lt A. B. Learoyd, who bombed from a very low level in the face of intense flak which seriously damaged his aircraft. He pressed home his attack 'with the greatest resolution and skill', being subsequently awarded the Victoria Cross.

During August, Whitley squadrons made some deep penetra-

tions of enemy air space. On 18/19th the Caproni factory and Pirelli tyre works at Milan were raided and on 24/25th Milan and Augsburg were targets. But the climax this month came on 25/26th with the first raid on Berlin. Eighty-one bombers were despatched but only 29 claimed to attack the primary target on this dark night. This gives an indication of the difficulties facing night bomber crews at the time. They lacked the vital radio and radar aids with which Bomber Command later equipped itself. Weather conditions, too, played a large part in success or failure of such early operations. A further 21 aircraft on this raid apparently reached 'the big city' but were unable to locate the specified aiming points which included power plants and the giant Siemens electrical equipment plant. Of the Wellingtons involved, only 99 Squadron's crews claimed to bomb the target. Others which made such claims came from Nos 44, 49, 50, 58, 61 and 83 Squadrons. Bombs had fallen on London the previous night—possibly by chance—and the Cabinet's reaction was that Berlin should immediately be bombed in retaliation. The Air Staff was not keen to do this. Berlin involved a very long journey, and they considered there were more worthwhile strategic targets. But the politicians had their way discarding professional advice, and Berlin was also placed higher on the bombing priority listing. Another raid was carried out on 30/31st.



N1503 'M' of 19 OTU in the summer of 1940. 'M' appears to have been applied in a very pale shade of grey.

Early in September a new threat had clearly developed. Many large and some motorised barges were massing in the captured ports of Belgium, France and Holland intended for the transport of an army to invade Britain. It was decided to launch an all-out attack upon these, employing all Groups of Bomber Command.

Since their mauling in France, the Battle squadrons had largely been rested, but on August 13 Nos 12 and 142 moved from Binbrook to Eastchurch for possible anti-invasion operations.

No 12, escorted by Blenheims, went bravely into action during the late evening of August 17 against Boulogne with 142 making a follow-up raid. In September the Battles flew a few more operations against Channel ports by night and soon the Command was directing half its offensive sorties against this dangerous development so close at hand.

Even these operations were fraught with risks. On the night of September 15/16, which we now celebrate as Battle of Britain Day, Hampden P1355:OL-W of 83 Squadron was ordered to bomb Antwerp. A shell apparently burst in the bomb bay and soon a fire started. Young Sgt John Hannah fought it with fire extinguishers and later his log book, whilst ammunition exploded

around him. Heat and flames all but blinded him. The floor of the aircraft burnt away, leaving only the main frames. Although badly burnt, John Hannah succeeded in putting out the fire and then, discovering that the navigator had left the aircraft, passed maps to the pilot who brought the crippled machine back to base. Although Hannah reached home he was subsequently ill for many months in Papworth Hospital. Some time after, he died, a fourth Bomber Command recipient of the Victoria Cross.

The intensity of the German attacks on Britain brought more clamour for retaliation raids. This was one of the reasons why the Whitleys were taken off the attacks on the barges in September. It led also to 119 Whitley-Wellington-Hampden sorties being despatched to Berlin on September 23/24 once again to specified targets. This time 84 aircraft claimed to attack. Raids on Berlin by smaller forces had been taking place earlier that month, 77 Sqn, for instance, sending its Whitleys there on 10/11, 12/13 and 15/16th.

By the start of October, more bombers were taken off operations against the barges, for these had been progressing well. In their place came raids of a strategic nature and on October 5/6 Whitleys again crossed the Alps, this time going to Turin. Soon the *Scharnhorst* and *Gneisenau* at Kiel were receiving such attention, and one of the types upon which Bomber Command's 1940 strength had rested was withdrawn. This was the luckless Fairey Battle.



**Above:** Hampden P1316 in the summer of 1940 served with 14 OTU and, like the Hereford behind her, exhibits the usual type of roundels and fin stripes on Hampdens, etc, although the two fin stripes can be seen to differ slightly. Both have under wing roundels (All photos, Imperial War Museum).

Shortage of front line aircraft had led to some new Polish squadrons forming at Bramcote with Battles. They were then placed in 1 Group and later equipped with Wellingtons. Rumour rife at the time suggested that the reason the Poles had Battles was that had they been given longer range aircraft they might have taken the conduct of the war more into their own hands and struck at German cities in retribution for the rape of their homeland—but rumours abounded in those days.

Few operations were flown by the Battles in October. On 15th they flew their last operational sorties: 301 Sqn raided Boulogne, whilst 12 and 142 Squadrons each sent two aircraft to Calais, L5399 with L5076 and L5240 with L5259 respectively. Already the main body of both 12 and 142 Squadrons had returned to Binbrook, there to await a new type.

It will be recalled that when the Wellington was ordered into production a proviso was made that machines from the shadow factory would be powered by Merlin Xs to ease any production bottleneck concerning the much-needed Bristol Pegasus. No real emergency in engine production ever arose, but the great demand on the Rolls-Royce Merlin lines for the three principal fighters was such that few could be spared for any bomber aircraft. It was indeed one reason why the Mosquito was never adopted when first mooted.

Design work on the Merlin-engined Wellington had been initiated in January 1938, and on March 3, 1939, the prototype of the Mk II, L4250, a modified Mk I airframe, made its initial flight. It differed from the Mk I in other important aspects. It had Frazer-Nash turrets like the Mk IA, and the superior 24-volt electrical system. Its more powerful engines in heavier units than the radials had an unfortunate aspect. They forced the c.g. forward, this considerably upsetting the trim as well as being linked with increased all-up weight. A solution was eventually found in a larger tailplane and stronger undercarriage with slightly larger diameter wheels. These requirements, the results of



**Above:** Manchester L7284 has a paint scheme peculiar in style to the early Manchesters and akin to that of the Halifax 1. Grey codes and almost certainly red serial. She joined 207 Sqn on November 29, 1940, and passed to 61 Squadron in April 1941. **Below:** Wellington II L4250, the prototype of the Merlin Wellington. Photo taken late in 1940 showing Type A roundels.

trials, and the great demands on the Merlin in 1940, delayed the aircraft, which in its production form proved superior to the Mk Ic on several counts. Increased power improved take-off characteristics and allowed an increased all-up weight. This afforded either a heavier bomb load or more fuel. The Mk II was faster and it had a higher ceiling. Against this the availability of engines had to be set, whilst in service the new Mk II suffered from engine overheating on numerous occasions and was not popular with those squadrons which operated only a handful. Others more fully equipped encountered much less trouble with an aircraft which had one great advantage. In the autumn of 1940 the possibility of increased bomb load was considered and it was decided to adapt the Mk II to carry the new 4,000 lb bomb. There were many problems with the weapon and it was March 1941 before it was cleared for service. No Mk IIs had yet flown on operations.

An initial order was agreed for 200 Wellington IIs which materialised as T2545 (an experimental machine) and production aircraft W5353-5401, W5414-5463, W5513-5537, W5550-5598 and W5611. First to receive them was No 12 Sqn Binbrook, which took W5353 and '54 on strength on November 10, 1940. The next two aircraft went to 142 Sqn at Driffield. But it was April 1941 before they commenced operations, the long conversion period being due to slow operational development of the type and crew shortage since front-line squadrons were making great demands on the output from OTUs.

The Wellington II was little more than an interesting addition to squadron strength. Much more important and larger shapes had joined, or were about to join, Bomber Command. First of these was the giant Short Stirling, the so-called 'ideal bomber' whose origins lay in Specification B.12/36 and upon which great hopes were pinned. Suffice at the moment to say that it entered production in July 1940. The first to join No 7 Squadron at Leeming, N3640, is reputed to have come on strength on August 2. No proof that this actually happened seems yet to have been forthcoming and so it would be interesting to hear from any readers who then served with 7 Sqn, or who can throw some light on this aspect.

Initially it was planned to equip the squadron with eight aircraft for trials as this new exciting large four-engined bomber was the herald of the force with which Bomber Command was to destroy the German industrial machine. Stirlings in their early days attracted much undesirable attention. Oft-pictured N3641 was fired upon over the Isle of Man in September, being an unfamiliar shape to the AA gunners. Over the Thames Estuary on their test flights from Shorts at Rochester, Stirlings aroused much suspicion amongst fighter pilots despite their 'trainer' camouflage and, at one time, their 'sky' under surfaces. Late in October the squadron moved to its operational station, Oakington. But it was December 20 before one of the huge machines, N3637, hove into the new circuit, causing a memorable flurry of excitement among the handful of local enthusiasts who saw it.

Another new type had by then made its debut in Bomber Command. Great things were also expected of this machine, the Avro Manchester. It, too, was conceived to a 1936 specification, as a bomber for world-wide service and the latest in the changing chain of 'general purpose' aircraft. It stemmed from a most

*Continued on next page*



## Bombing Colours—continued

exacting requirement which made almost impossible demands upon the aircraft industry. On November 6, L7279, fourth production example, touched down at Boscombe Down where No 207 Sqn was to receive several before taking them to its war station, Waddington. By the end of November, L7278, '7283 and '7284 were on strength, by which time another important new aircraft was in RAF hands. This was the Handley-Page Halifax whose origins lay in the same specification as the Manchester but which, in the project stage, had been re-planned as a four-engined bomber. No 35 Sqn was the first recipient and on November 13, L9486 passed into its hands, also at the experimental station on Salisbury Plain. But these were merely beginnings of a new era still really far off. Upon the Wellington IC, the Hampden, Blenheim IV and the Whitley V, Bomber Command must rely for a very long time.

**Below:** Wellington Ic W-GR of 301 Sqn wears her serial in a camouflaged 'box' and can be seen to have the camouflage on only part of the rear fuselage, even in 1941.



Apart from the introduction of revised roundels and fin stripes on the night bombers, and the painting of Blenheims and some Battles in the day bomber scheme, there was little change in bomber markings until the strategic offensive got fully under way in summer 1940. By then very few Wellingtons and Hampdens had underwing roundels although exceptionally one could see Hampdens wearing them as late as 1941. Blenheims and the repainted Battles also wore them at this time.

Addition of the yellow outer ring to fuselage roundels, ideal for identification purposes, brought misgivings amongst bomber crews. First visible signs of this appeared, certainly in 3 and 4 Groups, in July 1940. Wellingtons and Whitleys appeared with either a grey wash over the white of the fuselage roundels, black paint over these areas, and/or 'doctoring' of the wide yellow ring. There was never any consistency of these features on any of the many bombers I recorded, nor indeed among those on any one unit. Whilst this change was manifesting itself there was at the other extreme 11 OTU where Wellingtons acquired pale blue KJ and OP letters of a tone I never saw on any other bombers.

Blenheims of 2 Group usually wore grey codes but an interesting exception concerned those of Nos 15 and 40 Squadrons at Wyton. They applied Dull Red codes to their aircraft and outlined them white, a colour retained until they received Wellingtons. I first noted this change early in August 1940. At no time did they ever wear grey codes outlined white as erroneously depicted elsewhere.

On July 9, I first recorded a quite different feature. A passing Wellington had a most unusual extension of its matt black under surfaces from wing root up the sides of the fuselage rear and sweeping down to the tailplane leading edge. Within a few days I had noted others similarly but never identically marked. Rather surprisingly, some Wellingtons retained such markings well into 1941. P9248 which I recorded at Mildenhall at the end of July 1940 is illustrated from a sketch I then made. Grey codes remained and the serial number was either re-applied in grey or left in black on a 'box' of the old camouflage. From Wellington crews it soon emerged that these markings were to defeat the searchlights for which reason the white of the roundel had been overpainted and some yellow rings reduced to narrow bands.

By August 1940, the black sides were common, soon extending higher up the fuselage and soon were terminating in irregular wavy lines, the number of wave tops varying in size and style from aircraft to aircraft. An extension of the black finish which later assumed a super-matt texture had meanwhile appeared on the fins and rudders of many bombers and by November the black had been extended on some Wellingtons to cover the entire rear fuselage from the fin leading edge aft, but many aircraft, even late in 1941, retained some upper surface camouflage in this area. The ultimate in Wellington markings (which included extension of the black on the nose from about August 1940) was the overpainting in black of the long side windows. Although there was a gun station aft, therein it was felt that any means of reducing the very troublesome searchlight glare in the aircraft was worth seizing, hence the over-painting. Beam guns were in any case often not fitted.

For operations on winter nights in 1940/41, Blenheims also acquired black under surfaces and tails to a limited extent. Since these squadrons formed basically a day force, only a portion of each squadron usually had black aircraft.

Grey codes and serials on the black were the norm, but some early Stirlings, Manchesters and Halifaxes had red serials on their dark green and dark earth finish, the extension of the black not appearing until 1941, in most cases.

This, then, was a period of flux where markings were concerned. Only a basic outline can really be given for precise camouflage varied them from aircraft to aircraft and the usual 'A' and 'B' camouflage patterns were still in vogue.

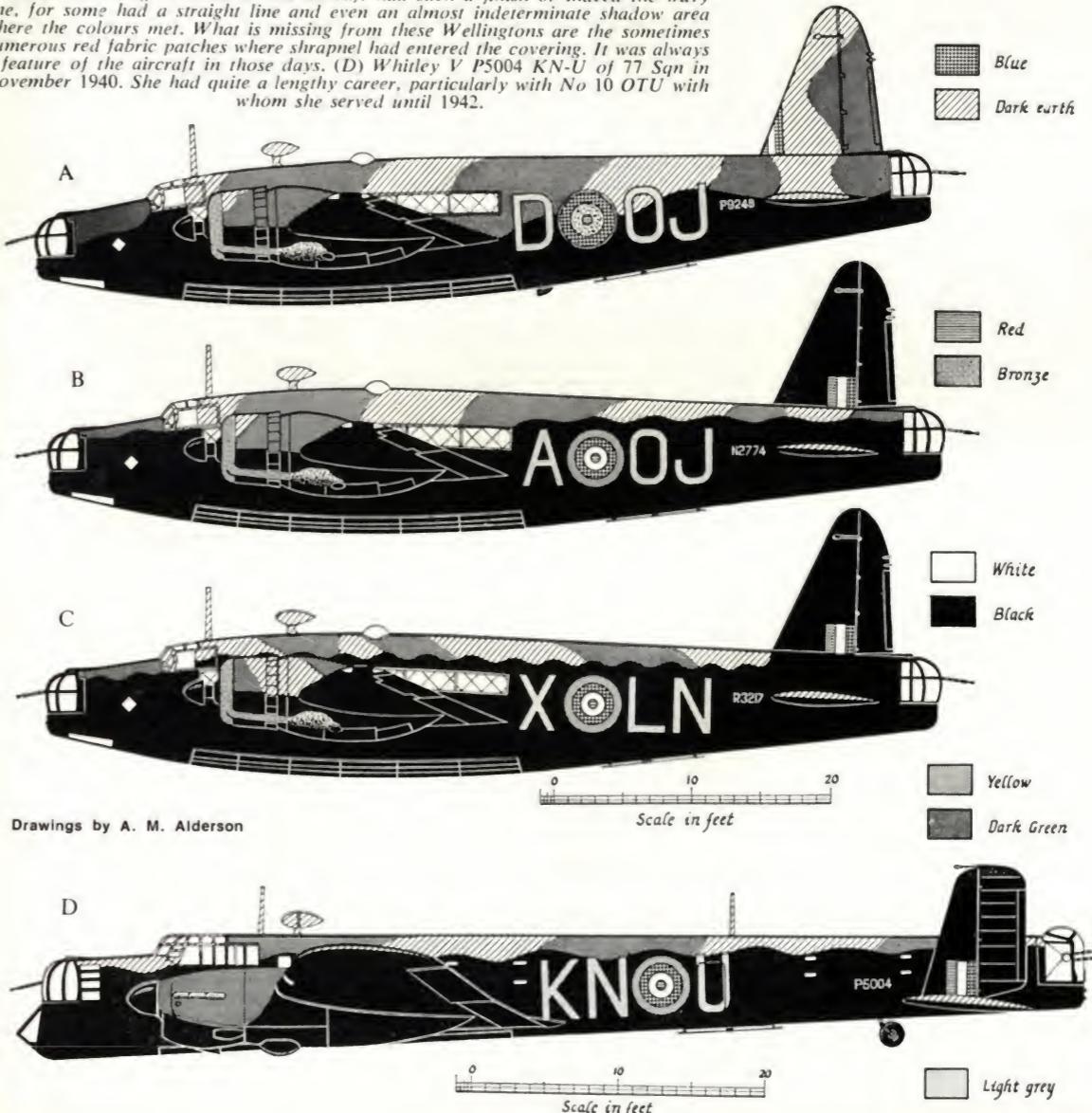
October in many respects represented a watershed where squadron equipment was concerned. The following table covers the end of an era and the birth of a new one, and indicates equipment state on November 30, 1940.

Sqn	Base	Aircraft	Sqn Identity letters	Example in use
7	Oakington/Leeming	Stirling I	none	N3636
9	Honington	Wellington Ic	WS	L7799 : D
10	Leeming	Whitley V	ZA	T4265 : J
12	Binbrook	Wellington II	PH	W5395 : T
15	Wyton	Wellington Ic	LS	T2702 : H
18	GI Massingham	Blenheim IV	WV	T1862
21	Watton	Blenheim IV	YH	R3675 : A
35	Leeming	Halifax I	none	L7244
40	Wyton	Wellington Ic	BL	R1166 : M
44	Waddington	Hampden	KM	X3026 : R
49	Scampton	Hampden	EA	X2900 : S
50	Lindholme	Hampden	VN	P3004
51	Dishforth	Whitley V	MH	P5027 : H
57	Feltwell	Wellington Ic	DX	T2713 : Q
58	Linton-on-Ouse	Whitley V	GE	P5058 : F
61	Hemswell	Hampden	QR	P4339 : H
75	Feltwell	Wellington Ic	AA	R1177 : F
77	Topcliffe	Whitley V	KN	N1524 : G
78	Dishforth	Whitley V	EY	T4209 : W
82	Watton	Blenheim IV	UX	R3594 : F
83	Scampton	Hampden	OL	X2978 : K
99	Newmarket	Wellington Ic	LN	R3199 : S
101	West Raynham	Blenheim IV	SR	P6908 : D
102	Topcliffe	Whitley V	DY	T4135 : K
103	Newton	Wellington Ic	PM	R1043
105	Swanton Morley	Blenheim IV	GB	L8788 : N
106	Finningley	Hampden	ZN	P1320 : B
107	Wattisham	Blenheim IV	OM	N3575
110	Wattisham	Blenheim IV	VE	T1993
114	Oulton	Blenheim IV	RT	T1830
115	Marham	Wellington Ic	KO	R1084 : Q
139	Horsham	Blenheim IV	XD	R3611 : N
142	Waltham	Wellington II	OT	W5364
144	Hemswell	Hampden	PL	X3007
149	Mildenhall	Wellington Ic	OJ	P9247 : M
150	Newton	Wellington Ic	JN	R1042 : A
207	Waddington	Manchester	EM	L7279
214	Stradishall	Wellington Ic	BU	N2778 : R
218	Marham	Wellington Ic	HA	R1009 : L
300	Swinderby	Wellington Ic	RH	R1183 : B
301	Swinderby	Wellington Ic	GR	R1006 : H
304	Syerston	Wellington Ic	NZ	R1215
305	Syerston	Wellington Ic	SM	R1213
311	East Wretham	Wellington Ic	KX	R1225

Michael J. F. Bowyer



**Above:** After serving 99 Sqn N2912 passed in April 1940 to 215 Sqn at Bassingbourn. Previously LN-H, she acquired the LG coding in April and the photograph is believed to have been taken in June 1940. By this time she was part of 11 OTU whose Wellingtons were certainly wearing KJ and OP coding in that month. Note the enlarged red centre to the roundel and the broad fin striping. Both aircraft have under wing roundels and appear to have differing colour codes. **Opposite page, bottom right:** The extension of the black on the Whitley V is shown in this photograph taken in 1941 of T4336:GE-E of 58 Sqn. **Below:** (A) Wellington Ic P9248 D-OJ of 149 Sqn as recorded at the end of July 1940 at Mildenhall. Its black under surfaces have begun to 'creep' up the fuselage sides, the roundel has been 'doctored', its white over-painted by what appeared to be a grey wash and the fin stripe remains minute—something favoured by the operational Wellington squadrons. (B) By the end of August 1940 the black on the Wellingtons terminated higher on the fuselage. Codes and serial remained grey, but the fin stripe is now more conventional like the roundel. This particular example was seen in the depicted markings much later—November 1940. She failed to return from an operation on November 20, 1940. (C) LN-X:R3217 served with 99 Sqn at Newmarket Heath late 1940, and was seen wearing the illustrated scheme at the end of November. National identity markings, codes, roundels are conventional but note that the black extends over the rear fuselage and the wavy line termination has been tidied. It would be wrong to think all the aircraft had such a finish or indeed the wavy line, for some had a straight line and even an almost indeterminate shadow area where the colours met. What is missing from these Wellingtons are the sometimes numerous red fabric patches where shrapnel had entered the covering. It was always a feature of the aircraft in those days. (D) Whitley V P5004 KN-U of 77 Sqn in November 1940. She had quite a lengthy career, particularly with No 10 OTU with whom she served until 1942.



Drawings by A. M. Alderson

# ARMoured TRACTION ENGINE

Making a Fowler B5 of the Boer War period

By Gerald Scarborough

DURING the Boer War of 1898-1900, several Showmans' Traction Engines were purchased and altered to suit military needs. The War Office also ordered many new engines, amongst which were the Fowler armour plated engines complete with armoured wagons for carrying ammunition and the 4.7 inch howitzers. A train would consist of four wagons and two howitzers either towed or carried aboard the wagons. They would be winched up steel channels using the engine winding rope, the drum of which was on the left side of the rear axle. This winch could, of course, be used either for unditching the engine if it should be bogged down or for dragging the wagons over small streams, etc. The engine weighed 22 tons of which 4½ tons consisted of armour plate, the boiler worked at 180 lb psi; it was rated at 10 nominal horse power, though the actual indicated horse power was about 120. The hind wheels were 7 ft dia and 2 ft wide and it carried 400 gallons of water with 15 cwt of coal in the bunker.

Life for the crew would be pretty unbearable with the heat in this enclosed cab from the firebox and boiler under the hot African sun. The driver had only two narrow vision slots facing forwards and of these he could only see through the left one by means of a mirror. The wagons were each about 15½ ft long and weighed 5 tons each and could carry 12,000 lb of ammunition. Reference to what must be the grandfather of all fighting vehicles can be found in *A Century of Traction Engines* and various other books on steam power, and a drawing of the basic Fowler engine (though this is fitted with the standard 1½ ft wide hind wheels) can be found in *Traction Engines Worth Modelling*.

Construction of the model is not in fact difficult, the armour covers up all the intricate detail of engine, gears and controls, etc., and construction of the wheels is not as hard as might appear. Start with the armoured body and draw the sides, top and back on 10 thou plastic card. This may seem rather thin but does

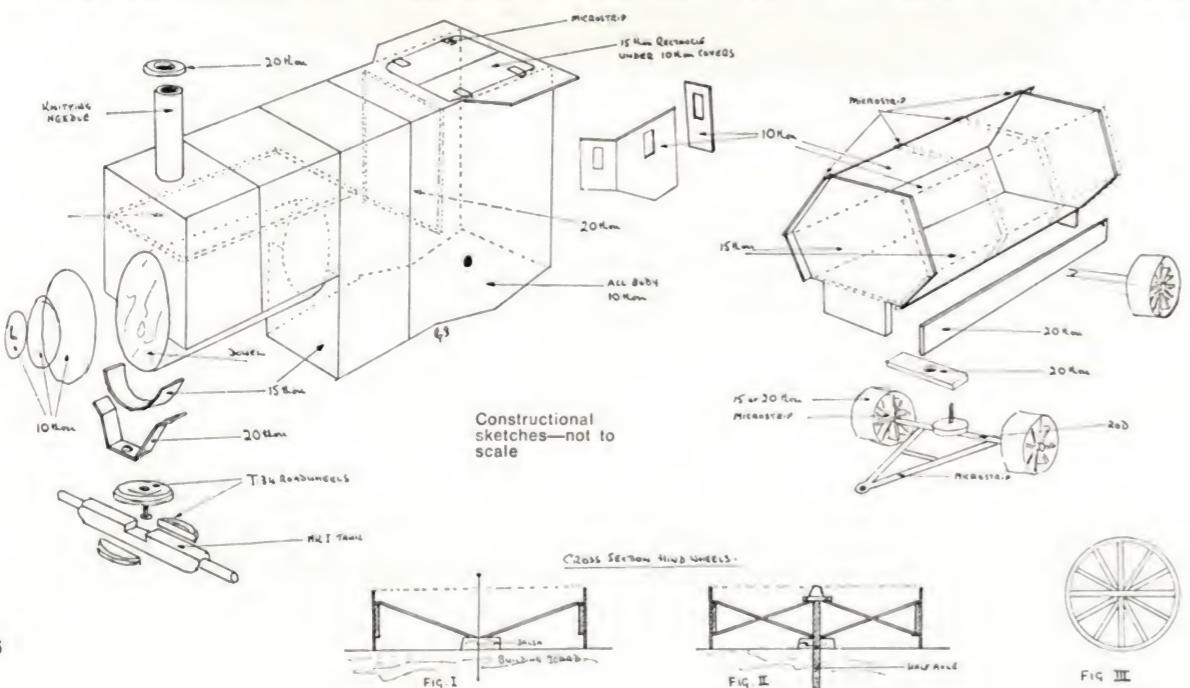
allow you to represent the rivet detail effectively and these should be impressed, before cutting out the part, with a blunt compass or fine point ball pen using a piece of cardboard behind the plastic card. Turn over and score in the joins between each panel and then cut out each part. The sketch should show how the rest of the parts go together but don't put the bottom in at this stage.

The boiler I made from wooden dowel as very little of this shows, but if you have a ball pen case of suitable size it could be used instead. The front wheels and axles come from the Airfix Mk I Tank, they are spot on for size although to be strictly accurate they are short of spokes. Cut off the axle beam and cut out a clearance at the centre for the pivot. This I made from rod with the 'nail' head formed by applying a hot poker to the end, but if you have a spare propeller shaft left over from an aircraft kit this could probably be adapted.

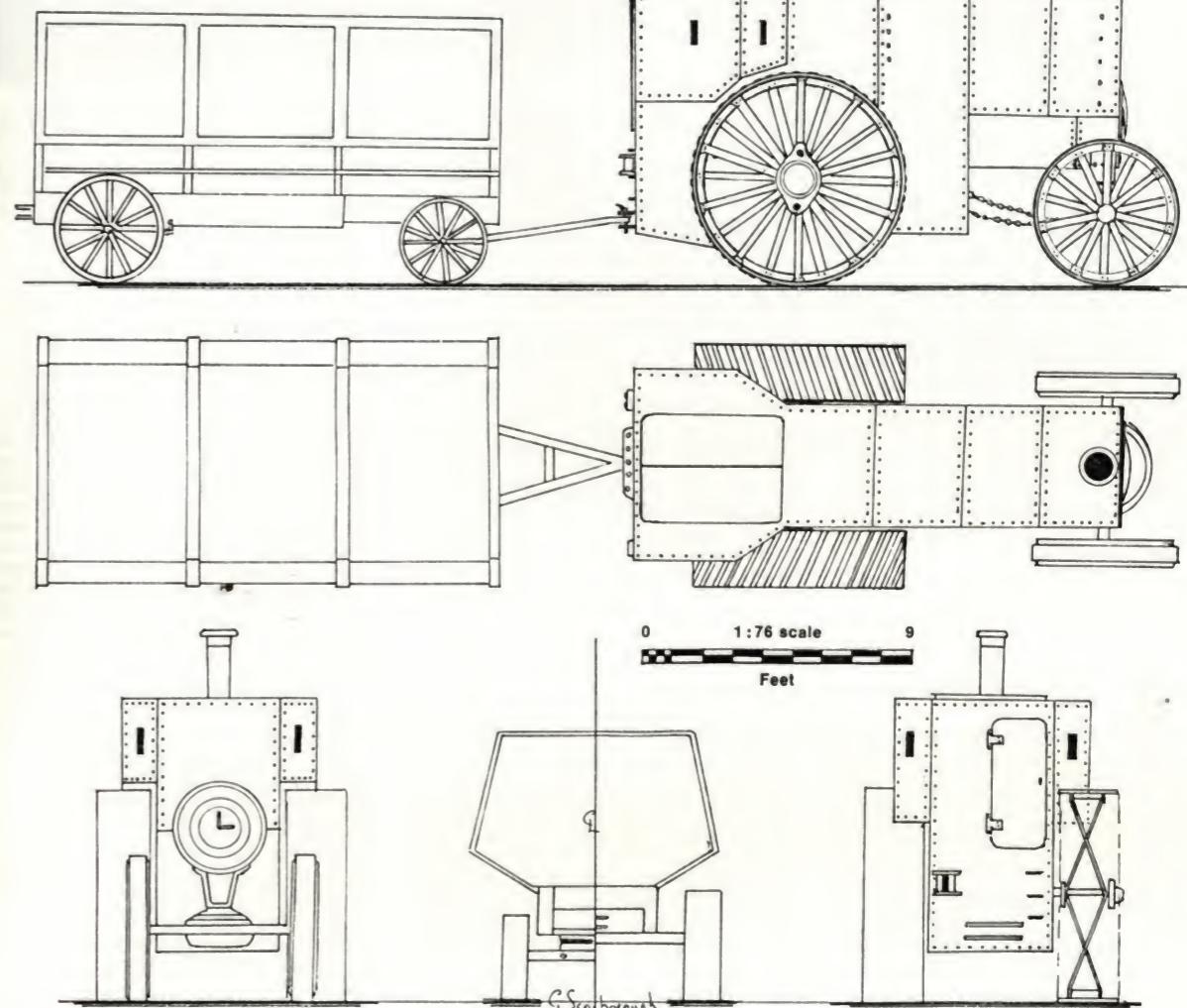
The turntable is from a T-34 road wheel cemented to the top of the axle



Above: Close-up showing details of wheels and cab.



Fowler B5 Armoured Traction and Road Train



beam and another, with a section the width of the axle cut out, is cemented half in front and half behind the beam as shown in the sketch. Add the 'saddle' for the front axle support to the boiler and all the steps, drawbar brackets, winch rope guide rollers, rear door, top ventilator hatch covers, smoke stack and boiler front, hinges, etc., to finish off the armoured body. This can then all be painted ready for final assembly.

For the hind wheels, first cut out two strips 8 mm wide by 86 mm long from 10 thou plastic card. Bind these with wool round an old, empty, Humbrol paint tin, as this is just about the right size. Put this in a tea-cup and pour boiling water over the lot, leaving for about 30 seconds for the heat to penetrate, then tip out the hot and fill up with cold water. This should set the plastic card and give two round and true rims. Next cut two strips 4 mm wide by 84 mm long from 20 thou

plastic card and give them the same 'cooking' treatment. These will be cemented inside the outer rims after trimming at the ends to give a good fit; make sure the joins come at opposite sides of the ring. A sliver of Sellotape at the join on the outside will hold the lot in place until dry. Trace the drawing of the rim, hub centre and the spoke positions and tape this down to your building board, then place the rim over this using thin strips of tape to hold in place. Pin and tape a scrap of balsa wood, 1/16 inch thick, in the centre and add the spokes

from Microstrip cut to length and with one end bent over as shown in Fig 1, leaving room in the centre for the axle. When dry, turn over and add the second set of spokes similarly but this time you can add the half axle from rod (I used a wooden cocktail stick) a loose fit in a hole drilled in your board, as shown in Fig 2. Fiddling the second set of spokes in is a tweezers job but is not really difficult if you lay them in place and then spot the join with Mekpak on a fine brush.

It is, of course, best to touch all plastic

Below: Side view of the model showing the rivet detail.



as little as possible with the fingers and these must be clean. I find that a little Swarfega removes the dirt and perspiration better than anything else, so if you have trouble with joints that won't hold, this could be the reason. To finish off add the differential lock collar and hub cover and leave to dry. When thoroughly dried out, carefully remove from the building board and thread a 15 thou plastic washer on to the inside and cement to the spokes in the centre, making sure the axle is lined up true.

Add the diagonal strakes (there should be 44!) from Microstrip around the outside of the rim—it's best to cut these oversize and trim the ends off when dry but do note the way they go, don't make two left wheels. After painting, the wheels on their half axles, can be inserted in holes drilled in the body sides (again, note the way the strakes go) and pushed into a collar inside the body. You can now add a bottom to the bodywork if you wish to strengthen it up.

The trailers are a nice, simple structure as will be seen from the sketch, but we have to turn wheelwrights again. Use short lengths of dowel of the correct diameter, instead of the Humbrol tin, the rim width as the drawing, the circumference of the front wheels about 30 mm and the rear 40 mm. A normal train would be about four wagons but I only



*Above: Fine overall view of the complete train in a realistic scenic setting. The engine is using its winch to pull the trailers round a rock, as described in the text below. The Airfix Tarzan Set natives show the size of the model.*

made two, but however many you decide to make, do a few spare just in case you go wrong. I made these a bit simpler with Microstrip spokes as shown in Fig 3. If you do not want to go to the trouble of making them, Slaters do 4 mm scale, 12 spoke wheels at about 9p per dozen and I would think that two of these stuck together would be suitable. You would want the 2½ ft diameter for the front and the 3½ ft diameter for the rear and these should be available at suppliers like Jones Bros of Chiswick. There is not a lot of lock on the front axle beams but if you can make this working it looks better. I used a 'wheel' and a bit of the wire axle from under a Minitank stuck on top of the axle, pivoting in a hole in the strip under the 'chassis'. The mode of getting wagons round a tight bend was for the engine to drag them bodily sideways with the winch. On metalled roads steel plate skids were used under the wheels to avoid ripping up the surface.

Finally, the colour would be a lightish battleship grey overall, bright metal showing on the wheel rims and strakes, dusty and sooty with the odd patch of rust.

One of the photographs depicts the engine using the winch to drag the wagons round a rock, and the Airfix Tarzan Set native onlookers give some idea of the size. For wargamers interested in the Boer War period this could make an interesting addition to your campaigns, and as a straight model I think it deserves a place among any collection of tanks and AFVs as probably the first self-propelled armoured vehicle actually used for war purposes. Anyone lucky enough to have the old Lesney Showman's Engine can arrive at this same model very much more easily. Removing the canopy gives you a basis on which the armoured body can be built and the problem of making the complicated wheels does not arise.

#### Single Fin Liberators—from page 358

and power plant, the drawing is quite accurate in showing circular cowlings, but there should be intakes between and outboard of the engines, with corresponding exhaust vents in the upper surfaces of the wing trailing edges. Also, as the Airfix wing from the B-24J version is used, the turbo-supercharger detail must be removed from the underside of the nacelles, and the trailing edges of the nacelles faired in. The two separate exhaust ports, one above the other, are just visible in the heading photograph behind the cowling gills on the port outer—they are not shown on the drawing.

(2) Fore to aft, on the roof centre-line, AL504 had an astrodome, radio mast, unfaired D/F loop (the two latter not shown on the drawing) and a second, faired, D/F loop roughly amidships. The radio mast and first D/F loop can be made out on the photograph.

(3) AL504 did not have outward-opening nosewheel doors, nor did she have the type of tail bumper shown in the drawing.

(4) AL504 did not have the flight-deck roof windows as shown in the drawing, but a metal roof with the exception of the 'eyebrow' windows above the windshields.

(5) Although the main frame stations in the forward area are shown (Station 2.0 is the angled frame behind the flight deck) main frame or bulkhead No. 5.0 is not shown and this should be, relative to the main gear leg, roughly in the area of the fifth window from the front, which leads to the impression that the window position or spacing is somewhat in error.

So far as the Liberator IX was concerned, this version did have outward-opening nosewheel doors and full flight deck roof windows as shown in the drawing. But although similar to AL504 in not

British and Commonwealth use of the Liberator—including Mr K. O. Phillips, of Heathfield, Sussex, two of whose photographs were published on page 285 of the May 1965 issue.

If readers are interested in pursuing this conversion (AL504) further, there are several good photographs available from the Imperial War Museum. They are:

CH.16497 LB.30 serial AL578—shows the wing leading-edge intakes very clearly.

CH.2978 Although an LB.30A, shows the wing trailing-edge vents.

CH.18806 The heading photograph of AL504—reproduced this month on page 358.

CH.18793 A starboard side view of AL504 on the ground.

MH.5696 A three-quarter front view of a C Mk IX (USN serial 90026) showing cowling and nacelle details, also the starboard forward door.

In conclusion I would like to stress that in my opinion Alan Hall and Richard Gardner have done a very good job—I am fully aware of how difficult it is to get full information on this particular aeroplane, and I hope that I have not been guilty of too much 'nit-picking'. I have been much impressed by the attention to detail and high standards by these contributors and can offer the foregoing points only because I have been gathering information together on the subject for some time. If any other readers are interested in a somewhat simpler conversion, I have the drawings and details of the conversion to C Mk VI from B and GR Mk VI and would be only too pleased to supply them on receipt of a stamped addressed foolscap envelope, sent to me c/o The Editor.

I would, of course, be happy to correspond with any interested readers on the



AIRFIX magazine

# T-34 Calliope

## A SIMPLE SHERMAN TANK CONVERSION SUITABLE FOR BEGINNERS OR EXPERTS

By Chris Rogers

*Model photographs show rocket launcher frame at maximum and minimum elevations.*

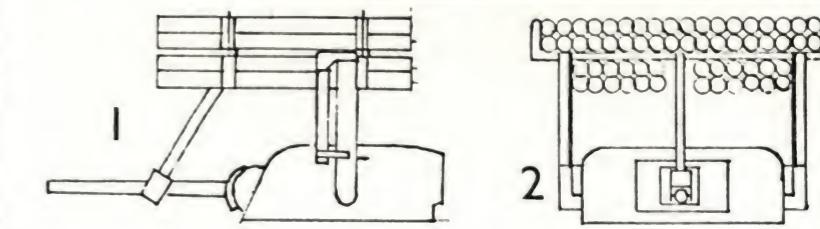
OF the many experimental rocket launchers on the Sherman tank, the T-34 Calliope was probably the widest used, being employed in the closing months of the war in Europe. The frame attached to the turret carried 60 rocket tubes, each housing a 4.6 inch HE rocket. On all Shermans except the M4A1 (cast hull variant) the bottom two rows of 12 tubes could be jettisoned. The rockets were fired electrically from inside the tank.

The model uses the standard Airfix Sherman tank kit with supporting side arms made from scrap plastic. They are square in cross-section and fit on the turret as drawn. In front of these arms are the counter-balance springs, and for these, use springs from the Airfix World War I tank. Brackets anchor the assembly to the turret near the top of the latter (see photos).

The rocket tubes are probably most easily made from cocktail sticks cut up, but these are very slightly too large, so to be strictly accurate the new Slater's plastic rod material should be used (available from Jones Bros, Chiswick). There is a gap between the top two rows of tubes and the bottom two, and on the model 40 thou plastic card is used to achieve this spacing. A thin band of paper is wrapped round the rocket tubes where shown and at the sides, vertical brackets are constructed (see photos).

The bar joining the barrel bracket to the rocket assembly is best made from insulated wire and the barrel bracket is made from plastic card.

*Four Calliope move forward in Koperich, Germany, February 1945, to support Third US Army troops encountering German pill-boxes in the area (Imperial War Museum).*



Drawings full-size for model

1:76 Scale

*Drawings show: (1) Side elevation of Calliope turret. (2) End elevation of Calliope turret. (3) Blast shield, size and position.*



pin holds them together.

The blast shield on the back of the tank is next added (see drawings for size and position). It is 21 mm wide. Details can now be added, and these include ignition wires between turret and rockets, and mudguards at the front of the track. For obvious reasons, a 50 cal machine gun was not fitted.

Finally, for those who prefer a more unusual model, try the T-34E1. This was very similar, but had two more tubes in each of the bottom rows. The photo in January 1967 *Airfix Magazine* is a useful guide.

# NEW KITS AND MODELS

## Riko: Kits for 1971

Riko is the trade name of Richard Kohnstam Ltd, 13-15 High Street, Hemel Hempstead, Herts, who are the importers of Tamiya, Otaki, Nitto, Bandai, and several other well-known ranges of Japanese kits. In addition they now import Lindbergh kits from USA and Heller kits from France, plus Marklin model railways, Minitanks, and Minitrains, a most comprehensive selection. In January we had a chance of pre-viewing some of the many new items in these ranges, some of which are available now, whilst others will be released in the coming months.

Apart from the Mini-tank 1:48 scale range, reviewed elsewhere, new items from Tamiya in 1:35 scale are the M60A1 tank (available now), and the Japanese Type 61, Centurion Mk 8, and a new version of the Saladin, all due very soon. Of these the most outstanding is the Centurion, which examination of the prototype kit showed to be the finest, undoubtedly, of Tamiya's offerings to date. Apart from perfect detail this is the first Centurion model we've seen which captures exactly the right 'sit' of the full-size vehicle with the track and suspension looking as though it really is holding up 50 tons or so of tank. Expected release date is May and the price will be around £2.50. Another Tamiya item of great appeal is a set of 1:35 scale British troops of the 1939-45 period as a counterpart to the German troops already made. The German troops are incidentally, once more on sale. The British troops will be released shortly. Finally, there is an excellent VW Kubelwagen in 1:35 scale complete with three figures.

Also noted is a PzKpfw III kit due from Otaki in 1:35 scale, utilising the chassis of the StuG III kit which we reviewed a few issues back. This should be in a lower price range than the Tamiya kits and looks good despite some rather crude road wheels. Again it fills a gap which Tamiya have so far left open.

Turning to Minitanks there is first of all an up-dated new edition of the *Minitanks Manual* priced at 62½p and available from Minitanks stockists now. This is a top value item well worth having at its modest price. It combines the functions of a catalogue of models with a pocket-book dealing in some detail with all the Minitanks items. Pictures, small scale drawings, historical notes, and organisation charts are packed into its small format. Minitanks models announced for future release are a 'Russian missile tank'—not identified further but possibly a Scud or a Ganner—the M551 Sheridan, M114 and M114A1 APCs, a tent, and tank commander figures for all nations depicted in the Minitanks range.

In the American Lindbergh range there are new car kits which look excellent, including a Mercedes and a Bugatti plus a Dornier 17Z in 1:72 scale which is not apparently new but is new to us. The French Heller range has not been available in Britain for some months but is now under the Riko wing and kits should not only be more readily available but they will actually be cheaper than hitherto. Notable among 1971 releases are some very fine 1:400 ship kits all featuring modern or recent French warships, among them the *Jean Bart* and the carrier *Foch*. There are many new sailing ship kits including a most attractive series of medieval and 'ancient' types scaled between 1:60 and 1:90 which look just right to go with Airfix and other OO size figures for wargames. Included are Viking longboats and Crusade period types. Next comes a number of big sailing ship models to the standard of *Royal Louis* which we favourably reviewed in these pages last year; this particular kit is, of course, once more available, which should please those who, we gather, were unable to obtain one after we reviewed it. Additions to the 1:72 scale Musée range include a Morane 230, Morane 225, and a Caudron 714, all of great visual appeal for aircraft modellers. There is a Breugel Atlantic in 1:100 scale, a 1:96 Apollo space capsule, and all variants of the Jaguar to 1:50 scale. A most attractive Heller catalogue, in full colour throughout, completes the extensive range and this should be available with a UK supplement very shortly.

Finally, on the railway side, Riko are handling the new Marklin On2½ which is 1:43 scale equipment in narrow gauge running on OO track—as cheap a way as any of venturing into O gauge for anyone tempted by the fine detail of the larger scale. Steam and diesel locomotives are available, plus a range of rolling stock, all based on German prototypes and beautifully finished. The 0-6-0T steam locomotive is a particularly splendid model. In addition to the Minitrains HO narrow gauge, a Minitrains N gauge has been introduced, all based on American railways prototypes but not duplicating, as far as we could see, anything made by Atlas, Minitrix, or other ranges. Very colourful reefer, gondolas, hoppers, and a car carrier are available now with more items, including a locomotive, promised shortly. Prices are 75p to £1.25 for the rolling stock models already on sale, which is very reasonable for the excellent quality.

This summary of forthcoming models is of necessity brief, and indeed we've not mentioned all that Riko plan to introduce as reviews of other items are already in hand. Most models mentioned here will be reviewed at greater length in the next few months as they are released. Meanwhile, 1971 looks like being a vintage year if the Riko models are indicative of the sort of kits we can expect from the Minitanks range.

In the American Lindbergh range there are new car kits which look excellent,

*Continued on page 372*



Top to bottom: Jap Type 61, the Centurion, British Infantry, and VW Kubelwagen, all by Tamiya.

AIRFIX magazine

# MODEL TOYS

PLASTIC KIT SPECIALISTS—ASSOCIATE MEMBER I.P.M.S.

## MODELDECAL



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March, 1971

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## New Kits—continued

model trade in general as the year progresses.  
C.O.E.

### Otaki: 1:144 scale jet fighters

THE firm of Otaki has introduced an interesting range of 1:144 jet fighter kits which we found to be quite appealing despite their diminutive size. We think that they will certainly be sought after by those modellers who collect 1:144 scale civil aircraft types like the Airfix Skyking range; indeed we often hear from readers who ask for military aircraft types in 1:144 scale. Each kit comes boxed with a colour drawing of the subject on the front and an assembly diagram on the back. There is a little flash, but nothing which can't be remedied with a craft knife. The kit parts click together very easily—the wings are one piece mouldings—and the oleos, missiles, and other small parts are commendably fine. The cockpits are 'solid', though there are separate clear canopies. Thus there is scope for cutting out an aperture in the fuselage and adding a tiny seat and other details. Surface detail is restricted to light panelling. All in all these kits should repay careful assembly and painting to make most attractive companion pieces to existing 1:144 scale models. So far available are a Phantom F-4B, a Crusader, a F-100 Super Sabre, and a Voodoo. Transfer sheets are acceptable though they lack serials (which are hardly missed in this scale) and other tiny items like ejector seat warning signs. The box art shows enough for painting details. Price of the kits is very reasonable at 20p each. Riko are the importers; stocks are limited at present and anyone who can't get these kits locally should enquire about availability (send a SAE) from Riko themselves, whose address is given C.O.E.

### Frog: 1:72 scale Aircraft

FOUR new kits from Frog will please FAA and Luftwaffe fans, since they cover some popular types. Two of the Royal Navy machines are in fact re-issues, the Wessex and Gannet being the kits concerned. The Wessex appears to have had added detail since we last saw it, though this may well be an optical illusion due to the excellent presentation of the kit. Highlight is a very fine transfer sheet (and colour scheme box art) giving a choice of a Royal Navy Wessex I or a Royal Australian Navy Wessex 31. Highly commended; price 24p. Second re-issue is the Gannet I (or 4) which appears to be unchanged from earlier Frog days, though the useful lead nose weights in the last Gannet kit we had are no longer supplied. Transfers for two alternative machines are given, together with associated colour art on the box in usual Frog fashion. There appears to be a slight error here, however, since the 815 Sqn aircraft is quoted as being from 'HMS Ocean' in 1956, complete with 'O' tail code. However, this should refer to Ark Royal since Ocean certainly never operated Gannets in 1956 (or at any other time). In those days she was a seaman's training ship complete with deckhouse on the flight deck and lacking both arrester wires and catapult—any Gannet attempting to land would have demolished the deckhouse (or itself) and probably disappeared through the flight deck for good measure due to its weight! However, this does not detract from the kit but it's worth setting the record straight—deck codes do not always correspond to initial letters. Last of the naval trio is a fine replica of a Westland Wyvern, a beautiful model of this ferocious-looking torpedo/strike fighter of the 'fifties. Assembly is straightforward, with once again a choice of markings. Price is 24p as is the Gannet.

### Tamiya 1:48 scale Mini tanks

NOT to be confused with the HO size Minitanks, these models are made by Tamiya in their normal style but to 1:48 scale. Ostensibly they are aimed at younger modellers and, in truth, they cut a few corners in the production; however, 1:48 scale has a big following among serious tank modellers and these kits should thus be a worthwhile addition to a size of tank model which has previously only been made by Aurora, though the Tamiya kits are not to the same high fidelity standards as Aurora's static models. As usual the limitations of motorisation are the main problem for in general the Tamiya models sit too high on their suspensions for comfort, but this is the only real drawback of an otherwise well presented range. Assembly of each kit is very simple, aided by the usual excellent instruction sheet. Motorisation is the easiest yet with the complete motor and gear unit ready assembled, and only

The T-34 Mini tank reviewed here.



a couple of wires to twist together. There is an off/on switch under the chassis in each case. Detail is very pleasing and the moulding quality equals the 1:35 scale kits. Assembly is not at all complex and the finished models are in every case quite convincing except at very low angles. We think that the serious modeller who dispenses with motorisation can make these models up to match the best Aurora scale standards. For example, the T-34 and SU-85 models could, we think, be improved by slicing about  $\frac{1}{4}$  inch off the chassis sides and ends to lower the whole vehicle and 'sag' the track—though we must stress that we've not tried this yet on our samples. The other kits available are for the M60, M60A1, and M60A1E1, and Swedish 'S' tank. Tamiya have simplified most of them by using 'plug in' guns and by omitting the bottoms from turrets, but nonetheless these 'short cuts' are not too obvious. Much more noticeable, however, is the much simplified suspension of the M60 models. Price per kit is 75p from all Riko stockists including Jones Bros of Chiswick who sent our review samples. C.O.E.



Two superb new Tamiya kits which have just been released are a 1:18 scale Subaru R-2 (£1.70) and the Honda CB-750 motor cycle to 1:6 scale (£7.99), both of which are detailed to a remarkable degree. The Honda 750, for instance, has individual links to its chain drive and dummy moving engine parts. Detailed reviews follow in the next issue.

you need to know for making this neat kit, complete with useful drawings for adding small details and altering the wings to the correct shape. Price is 17p. All our samples were kindly supplied by Jones Bros of Chiswick who hold ample stocks. Postage is extra for mail order. C.O.E.

### Almarks: 1:72 scale Italian transfers

LATEST in the Almarks series of transfers is a good varied set of Italian 1938-43 transfers. This includes six styles of fasces roundel, code numbers in red, white, and black, and six assorted pairs of group and squadron emblems. Price of the set (A24) is 29p. Also available from Almarks are a number of earlier releases in the transfer range which have just been reprinted again after being out of stock for some time. The sheets concerned are T13 (Infantry and Parachute Division formation signs), C1 and C2 (Battle of Britain RAF fighters), C3 and C4 (Battle of Britain Luftwaffe aircraft), A14 (Me 109 assorted emblems and stencil detail), and, finally, S3 (RAF Lancaster and Halifax). All these sheets cost 29p each. C.O.E.

### Dri-Dec: Finnish markings

THREE new sheets of Finnish Air Force markings from Dri-dec provide a near complete coverage for both wartime and post-war aircraft. Numbered 40, 41 and 42 in the range, the set includes national insignia, both swastika and roundel type, squadron code letters and a beautifully printed unit insignia sheet with markings for Fokker DXXIs, Brewster 239 Buffalo, Fiat G50, Bf109G-6 and MiG-21F aircraft.

Continued on page 377

AIRFIX magazine



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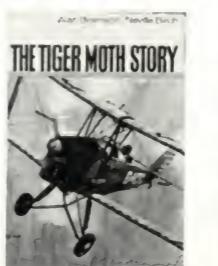
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ME/35 British 6-pdr. Gun (Waterloo/Crimée Period)

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ME/35 British Limber

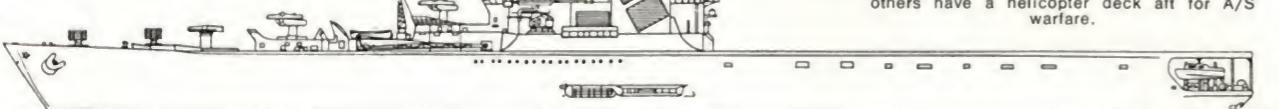
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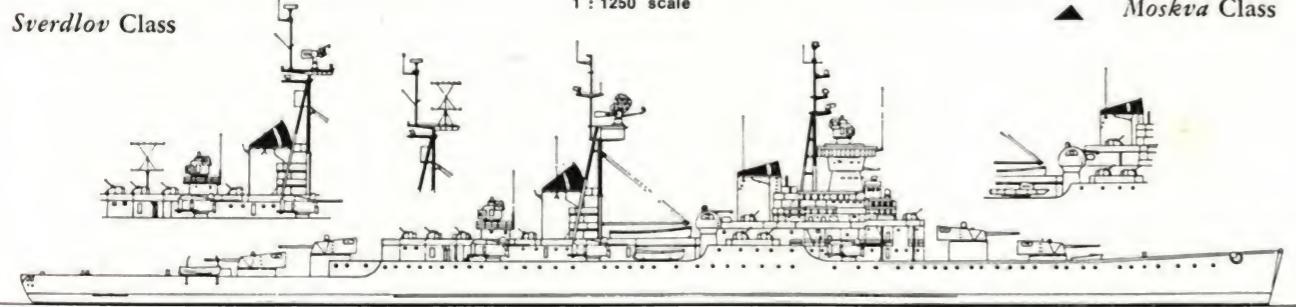
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# SOVIET SEA POWER

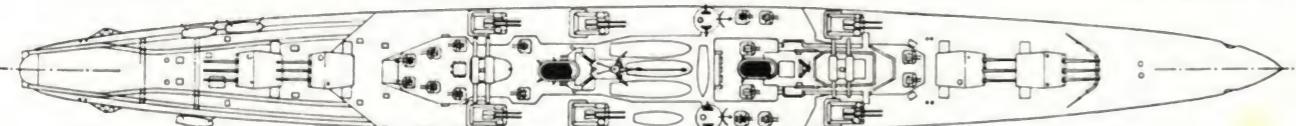
Above: A novel type for the Soviet Navy is the helicopter cruiser, of which the first, **Moskva**, appeared in 1968. A sister ship is the **Leningrad**. These 18 - 20,000 ton vessels are about 670 ft long and take up to 32 helicopters for either anti-submarine or amphibious warfare roles. Armament is two 12 barrel A/S rocket launchers, 3 twin AA missile launchers, and a number of 57 mm AA guns.



**Sverdlov Class**

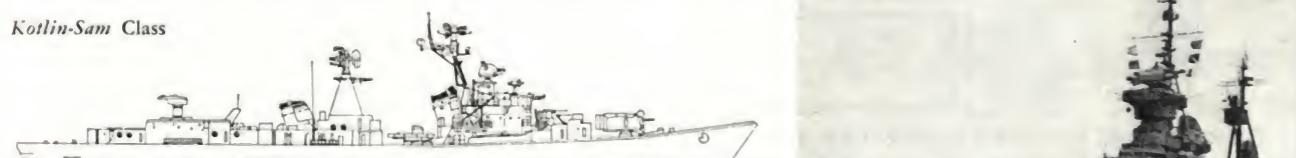


▲ **Moskva Class**

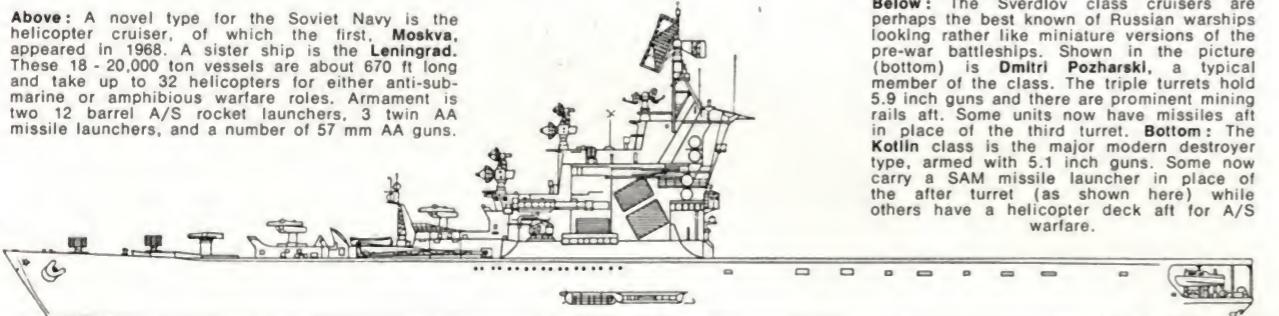
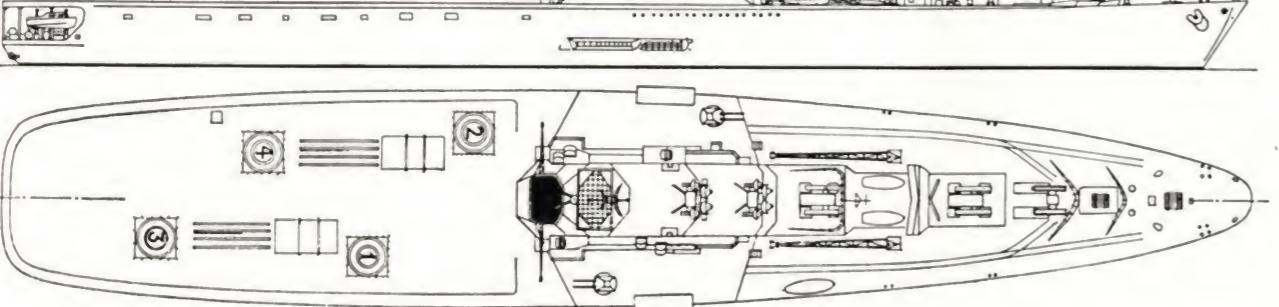


Right Inset: High AA platform and torpedo tubes fitted on early ships. They have since been removed.

**Kotlin-Sam Class**



The fine drawings reproduced here are taken from a superb new book **Guide to the Soviet Navy**, by Siegfried Breyer and published in Great Britain by Patrick Stephens Ltd, 9 Ely Place, London, EC1N 6SG, price £4.75. This definitive volume, produced by the United States Naval Institute, covers the subject in the most complete detail and is profusely illustrated with both pictures and scale drawings. Every class of ship is drawn with impeccable detail and other sections of the book cover training, weapons, naval air and land forces, naval aircraft, shipbuilding, and satellite navies. We've chosen three main surface vessel types as being of special interest to modellers. The drawings here are to 1:1250 scale, the popular wargaming size.



Below: The Sverdlov class cruisers are perhaps the best known of Russian warships looking rather like miniature versions of the pre-war battleships. Shown in the picture (bottom) is **Dmitri Pozharski**, a typical member of the class. The triple turrets hold 5.9 inch guns and there are prominent mining rails aft. Some units now have missiles aft in place of the third turret. Bottom: The **Kotlin** class is the major modern destroyer type, armed with 5.1 inch guns. Some now carry a SAM missile launcher in place of the after turret (as shown here) while others have a helicopter deck aft for A/S warfare.



## photoPAGE

More rare pictures from readers with captions by **Michael J. F. Bowyer**. A free Airfix kit is awarded for every picture published, but please note that there is usually a delay of some months before publication due to the limited space at our disposal.

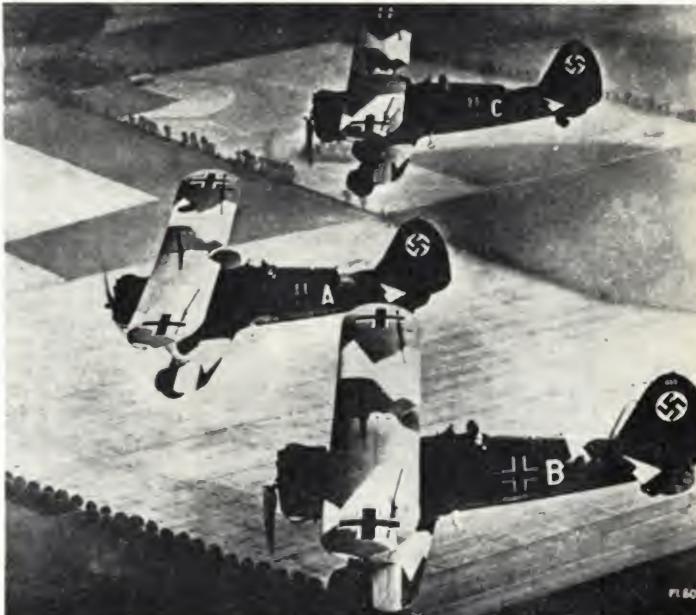
Top right: Rapide of the RNZAF, preparing for its first flight, in Fiji in about 1940. Aircraft is silver overall, and the serial NZ556 is black. Note the bomb racks (R. J. Lane). Right: RCAF Fairchild Cornell trainer 14441 with yellow fuselage and dark-coloured wings in 1943. Can anyone suggest what colour they might be? It was based at Pensacola for training British pilots (R. N. Yaxley).



Below: Two alternative colour schemes for the Airfix Henschel Hs 123, the aircraft in the smaller photo being overall Hellgrau (light grey) with black lettering and swastika in a white disc on a red band. Note that the registration letters also appear underneath the top wing. The formation is of aircraft of 2/St G 165 'Immelman' taken in 1937. The camouflage is three-coloured (RLM 61, 62, 63) and the code letters are as follows: 52+A12; 52+B14; 52+C???. The Werke numbers of the aircraft appear in small white figures at the top of the fin. Aircraft 'A' is 968 and 'B' is 969. (61: Dunkelgrün, 62: Dunkelgrun, 63: Hellgrau.) (Via P. Leaman.)



Left, above and below:  
Corsair of the RNZAF.  
This machine is featured on the Almarks transfer sheet for New Zealand aircraft (R. J. Lane). Another view of aircraft 'A' from the 'Immelman' Geschwader, note the individual letter repeated on the centre section (via P. Leaman).



# Letters to the Editor

## Gun pod

OTHER readers may be interested in an SUU-23 gun pod (housing the Vulcan M-61A1 rotary cannon) suitable for the appropriate marks of the F-4, available in 1:72 scale. This is an easy conversion for people, who like me, are new to the world of conversions. The pod started life as the wing tank of an Airfix Harrier. A piece of 20 thou plasticard, the same diameter as the inside of the tank, is stuck 23 mm from the back end of the tank and the two halves are then stuck together. Next, the rear 10 mm of the tank is cut off and discarded. The back end of the tank now becomes the front end of the pod. The perforated cap over the ends of the barrels is made from a 3 mm diameter piece of 40 thou plasticard. Seven holes, six at equal intervals round the perimeter of cap and one in the middle, are made. To make the barrels, six pieces of wire, about .5 mm in diameter and 10 mm long are positioned and stuck behind the outside holes of the cap. Another piece of wire, 15 mm long, is stuck in the centre of the cap and to the bulkhead, slightly offset from the centre towards the top. The blast deflection shield is a piece of 20 thou plasticard which is bent to fit the front top half of the gun pod and stuck on.

I am not sure what the colour scheme of the gun-pod is, but it is probably gloss white with a 3 mm band of silver at the front of the pod. The gun barrels are natural metal and the perforated cap is matt black. N. D. Parry, Salisbury, Wilts.

## Wrong place

I WOULD like to correct two errors in June and July issues of *Airfix Magazine*. In the article Bombing Colours June issue you give Heyford K6900 as crashed at Hendon Bridge December 13 1936. You correct this in the July issue to Hebdon. All this information is incorrect, it should read Hebdon Bridge and the date was December 12 1936. Seven aircraft left Aldergrove for Finningley and all were forced down or crashed. The one at Hebdon Bridge was the only one with fatalities, as 3 of the crew were killed. I should know this as I was on the spot at the time the aircraft crashed. Bad weather and icing was the cause of these accidents.

G. Sutcliffe, Shepton Mallet, Somerset.

## Tram engines

IN his article in the December *Airfix Magazine* on assembling the Prototype Models plastic card kit of the LNER/LMS Sentinel Shunter, Norman Simmons suggests that no other type of loco could be produced in the same material with such simplicity. May I suggest that the ex-GER/LNER 0-4-0 and 0-6-0 Tram locomotives, as used on the Wisbech and Upwell Tramway in Cambridgeshire, and also on harbour traffic in Great Yarmouth and Lowestoft, would be equally suited for construction from parts printed on plastic card? Motorisation by using a motor bogie would be possible, and the 'skirts' these

**Letters to the Editor selected for publication entitle the senders to each receive a free Airfix plastic construction kit of their choice. We are always pleased to receive your comments and pictures, which will be considered for publication. Submitted material and pictures can only be returned if accompanied by a stamped addressed envelope, and the Editor cannot accept responsibility for safe keeping of any such contributions, neither does he necessarily agree with comments expressed by correspondents in the letters column. Please note that any letters anticipating a reply MUST be accompanied by a SAE or stamp.**

block. The rudder and fin, struts, guns, undercarriage and pilot I took straight from the kit. The engine and air screw came from the scrap box.

Roderick King, Coulsdon, Surrey.

## 'Fearless' colours

HOWEVER good the Airfix *Fearless* kit is, I feel that I must point out a few errors in the painting instructions and in the kit itself. Firstly the painting instructions. The ship is not battleship grey, but a light grey and the nearest I can find is Humbrol's Ocean Grey HB3 as are all Royal Navy ships nowadays. Secondly, although not stated all the decks are Brunswick Green apart from the flight deck which is dark grey. Inside the floating dock the colour is matt black to the top of the grids on the well sides and then yellow up to the top. Finally the anchors are not bronze but the same colour as the hull.

Concerning the model itself parts 53, 54, 55, 56 should be discarded and should be replaced by Seacat launchers as supplied in the *Leander* kit. Also under the rafts on the fore-structure are some undeterminable things which are not on the *Fearless* herself and should be cut off and discarded. Once again, thanks again for a great kit, and I hope my outlines will help future builders of this model.

John C. Valentine, Horsham, Sussex.

## Vintage model

MY favourite kit is your HP 0/400, and as I am busy converting one of these into the 0/100 prototype, my memory travelled back 50 years to the time I first held a model of the 0/400.

The method used in those days might be of interest to modellers of today, having some novel features. The wings were made of thin gauge metal, zinc or aluminium, the camber rolled in, control surfaces grooved (or scribed) and the ribs were cut in using a marking awl, or bodkin. This instrument made a groove with ridges on either side. When painted with enamel the hollow filled in and left a nicely marked rib. Holes were drilled for the struts, which were of wood, and pointed each end, and these were forced through the holes and glued. Centre section struts were different.

Congratulations and thanks to Airfix for their RAF refuelling set. My main interest is railways but I always buy several of any 4 mm vehicle produced by Airfix to use the chassis with plastic card civilian-type bodies. A kit which would interest both air and rail enthusiasts would be the RAF Queen Mary, the 64-foot articulated lorry so often seen in this part of the country during the war carrying fuselages.

R. E. Whiley, Eaton, Norwich.

## Fokker DVIII

I READ Gerald Scarborough's article (January 1971) regarding the modelling of the Fokker DVIII, with interest. This is a subject I recently tackled, using a method far easier and faster than the one described. As the basis of the model I used the Revell kit of the Fokker DVII. First I reshaped the upper wing and tailplane. For the sake of speed I cut the rear 25 mm from the fuselage, shaping the rest from a balsa

This method was very strong, and with the interest today in early aircraft, this method might help some modeller, particularly the thin wing sections. I think that it was my father who invented this building method, long before mass-produced scale models, he being in Handley Page's experimental shop, and making the prototypes of such aircraft as the DH2 0/100, 0/400 and V/1500. By the way, the props were of mahogany, and were polished, and looked very realistic.

Thank you for bringing out the kit, that has provided me with so much pleasure, and happy memories.

F. Honey, Emsworth, Hants.

*AIRFIX magazine*

## Truck bodies

I have the greatest admiration for Mr Gerald Scarborough, but surely the Guy FBAX illustrated and described on pages 176 and 177 of the December issue is not correct? All the sources I have studied indicate that the FBAX had a semi-well type body, and not a flat floor. Therefore, the use of Matador parts is incorrect, and one should not be able to see daylight between body and chassis. The same applies to the Austin K6, K3, GS lorries and the recovery variant of the K6.

Having disposed of the destructive criticism, can I now attempt to be constructive and move on to Mr J. Davies' problem of slowing down the Iron Duke (page 250, January issue). I have a feeling that some thirty years ago I read of someone with a similar problem (although in a different context) and a suggested solution was to incorporate a 3.5 volt torch bulb into the circuit to 'bleed' off some of the excess current and thus cut down the speed of the motor. I don't know whether this worked in practice—but Mr Davies may care to make the experiment.

Finally, may I refer to a picture in Volume II of the *Pictorial History of the RAF* which shows a Wellington being 'bombed up' in Malta, from bomb trolleys hauled by an Army Universal Carrier. This could easily be re-created in miniature from Airfix parts, using the Carrier from the 6 pdr kit, and the bomb trolleys from the Stirling kit, with certain modifications to the tow hook on one of the towing arms or the other. The carrier needs the early pattern mudguards as previously described in your 'Military Modelling' articles, and should be finished in Malta camouflage of overall stone with a superimposed crazy-paving pattern of dark brown. Finally, the perfectionist might care to apply the markings of a white Maltese cross on a black square to the left front mudguard.

Dennis Harnaman, Denbigh, N Wales.



Left: A British frigate (smaller vessel) and the training barque Preussen. Below: The battle-cruiser HMS Hood.



The two pictures above and right show some of the models scratch-built by German reader Hans Hermann Günther. All are in 1:1250 scale, and are superb examples of what can be done using drawings like those of Soviet ships included this month. The detail and rigging are very good indeed, as is the overall standard of finish. Another model which Herr Günther sent us a photo of was a charming replica of an American stern-paddle riverboat, to the same scale as the other models.

## Unit identified

CONCERNING the B-45A Tornado featured on Photopage, in the January issue of *Airfix Magazine*, this aircraft was assigned to the 47th Bombardment Group, later 47th Bombardment Wing, stationed at Sculthorpe, Norfolk. The 86th, 85th, and 84th Bombardment Squadrons operated under this organization.

Colour schemes consisted of wing/group emblem on the nose. This can be plainly seen in your featured photograph. Large tail numbers, and tail and fuselage flashes in squadron colours were colourful—The 84th sported red, 85th yellow, and 86th blue. Your picture of the B-45A is most certainly of a member of the 86th Bomb Squadron (Blue).

The insignia of the 47th Bombardment Wing is described as follows: Shield: or, in chief, a bomb sable, point downward, winged gules, surmounting an arc, reversed and couped, azure, all above a stylized cloud indication, of the second, emitting four lightning flashes gules toward base.

John W. Archer, Earsham, Bungay, Suffolk.



Above: Drawing of unit markings mentioned in letter at left.

## New Kits — from page 372

The unit insignia sheet is the second produced by this company using multi-colour printing. Printing and register seem to be first-rate and the markings go down in the accepted smooth manner we have now come to accept for such samples.

There seems to be an active interest amongst a fairly wide group of enthusiasts in the Finnish Air Force at the present time and these sheets selling at 35p each will undoubtedly be of great interest to them. Supplies can be obtained direct from Dri-dec, 19 Market Street, Newbury, if your local dealer does not have them.

### Peco: N gauge wagons

SINCE our January model railway article was written, Peco have brought out four more different new wagons in their 'Quality Line' range of British N gauge short wheelbase wagons. The four new types are a SR 7 Plank Coal Wagon, price 40p; GWR Ventilated 10 ton Box Van, price 42½p; LNER Steel 12 ton Open Coal Wagon, price 40p; and an LMS Cattle Truck, price 47½p. Without doubt these are some of the finest commercially produced wagons in

any scale and the realism and faithful appearance of the models must surely represent the definitive standard by which other models will be judged.

They are incredibly detailed with all the planking, strapping and rivet detail reproduced to the correct scale and depth. The Cattle Truck is a little gem with remarkably fine 'T' and 'L' shaped strapping and guard rail across the open topped sides. Peco have even gone to the extent of painting the interior white, which follows prototype practice since cattle trucks were invariably whitewashed inside. The Pecc wagons are fully lettered and they have a most realistic exterior colour finish which gives them a natural weathered look. The SR and LNER open wagons are in correct SR brown and LNER bauxite red finish and the LMS and GWR cattle and ventilated vans are in correct grey livery. They are fitted with Peco's new close coupled couplings—retaining the same design of coupler hook which conforms to international standards and couples with all other similar couplings. We are told that to produce all the separate parts which go to make up each of these wagons no less than four different kinds of plastic are

used, each kind chosen to give the best results for its own particular application. These wagons certainly reach a very high standard and are a terrific inducement to take up N gauge.

### Historex: 54mm scale figure kits

FOR several years now enthusiasts have become accustomed to proclaiming with delight over each new addition to the Historex range of plastic model kits of Napoleon's armies. The overall accuracy and meticulous detailing of each subject, down to the last button and fragment of braid, are well-known throughout the hobby.

The high standards are fully maintained by the splendid models which go to make up the recently issued Regimental Band of the Foot Grenadiers of the French Imperial Guard 1804-1815, which is available in either of two positions, Attention or Parade March. Both drummers and musicians are included, together with a Bandmaster, Drum Major, and Sergeant Drummer, in all 40 pieces, which can be purchased separately, in packets of three (for drummers), and in complete ranks of seven (for musicians). The engraving of

Continued on page 380

## Books—from page 357

the captions which often do no more than identify the type and the unit; we feel that a picture history could find plenty of interest to point out in most of the pictures shown, in particular about the camouflage and markings which are wonderfully varied in these fine pictures. The volume dealing with the Avenger does a good job and includes very thorough coverage—with splendid pictures too—as far as the US Navy goes. The foreign service of the Avenger, which was extensive, is skipped over in a very perfunctory way, just two pages and eight pictures, four of these of one RNZAF aircraft. The sole picture of a Royal Navy Avenger is wrongly dated and the Avenger's fine record with the Fleet Air Arm gets a couple of brief paragraphs and no wartime pictures. The Avenger's long service with the Dutch Navy fares worse—just one sentence. We hope any future edition might be extended a little to rectify these omissions from what is otherwise an interesting book.

**Westland Whirlwind; P-47 Thunderbolt (Parts 1 & 2); Hawker Hurricane; Markings of the Aces, 8th USAAF (Part 1); Commonwealth Wirraway and Boomerang Markings.**

*Kookaburra Technical Publications, Dandong, Victoria, Australia. Distributed in UK and Europe by Almark Publishing Co Ltd, 104-106 Watling Ave, Edgware, Middx. 50p each.*

THIS bunch of assorted titles is from Kookaburra, now more readily available in Britain via Almarks, all the books following the most recent Kookaburra format which includes extensive colour art, scale drawings, cut-aways, pictures, and thorough text and data. The book on the Wirraway and Boomerang is new and should be useful for anyone detailing the Airfix Boomerang or making a Wirraway by conversion from the Harvard kit. It is packed with excellent pictures and drawings. The other books are new editions of earlier titles and we particularly liked the coverage of the Whirlwind (by Bruce Robertson) and Hurricane (by Francis Mason) which are both admirably

done and very good for detail of value to modellers. The same can be said of the two Thunderbolt books which we originally reviewed last year. The colour printing in these books (done in Formosa) is astonishingly good.

## MILITARY

**Sonderpanzer (German Special Purpose Vehicles).**

*W. Spielberger and Uwe Fiest.*

*Aero Publishers Inc, California, USA, and outside USA from W. E. Hersant Ltd, 228 Archway Road, London N6. £1.17½ (post paid).*

THIS attractively produced volume is the penultimate in the well-known 'Armor' series. It follows the usual largely pictorial format and includes four colour pages. Of the series so far this is certainly the most interesting for it covers the various German experimental vehicles and limited production types in great detail. For instance such vehicles as the Maus, Grosstraktor, and the radio-controlled tanks are fully dealt with and very many of the well-reproduced pictures appear in print for the first time. For the assiduous German AFV enthusiast this book will be a 'must'.

**Russian Tanks 1900-1970.**

*John Milsom.*

*Arms & Armour Press, 677 Finchley Road, London NW2. £5.50.*

LATEST in the Arms and Armour series follows the large page size and style of the two previous titles which dealt with German and Anglo-US tanks respectively. John Milsom will be well-known to *Airfix Magazine* readers for his T-34 and Stalin articles. A specialist on Soviet tanks in particular, his book is a tremendous volume of facts, data, pictures, and information. Certainly it gives the most detailed and exhaustive coverage to the subject yet available with many vehicles and variants that will be new to the average tank enthusiast. The coverage runs right up to the present time and the latest models in service. The text is long and scholarly with many appendices and virtually no aspect

of the subject left out. There are about 370 illustrations, a good many shown for the first time, and extensive appendices and footnotes. Detailed coverage of tactics and Soviet armoured doctrine is included as well as technical coverage of the tanks, SP guns and other AFVs.

## Panzerjaeger.

*Peter Chamberlain and Chris Ellis. Almark Publishing Co Ltd, 104-106 Watling Ave, Edgware, Middx. 50p.*

SECOND in the 'Wehrmacht Illustrated' series, this little book provides a fairly comprehensive pictorial coverage of the many types of extemporised tank destroyer built on tank and carrier chassis by the Germans in the 1939-45 period. All vehicles are shown, mostly with two or more big pictures of each. There is an introduction explaining types and development, and a data table for the principal types. Comparative side views are given of selected vehicles and there are four pages of colour art (and colour covers) showing typical colour schemes.

## MARITIME

**Guide to the Soviet Navy**

*Siegfried Bayer.*

*United States Naval Institute, distributed in Britain and Europe from Patrick Stephens Ltd, 9 Ely Place, London EC1. £4.75.*

THE USNI is renowned for the excellent quality of its reference books. This new publication is a fine work which probably tells more about the Soviet Navy today than the average Russian sailor knows! Virtually every item of Soviet Navy equipment is covered—including aircraft and the tanks of the marines. Russian harbours, training, shipbuilding missiles, and tactical theory are among the many subjects covered in detail. The major feature, however, is the class-by-class coverage of Soviet naval ships, with scores of scale drawings and pictures. Some drawings from the book are given on page 370 of this issue. Big ships are to 1:1250 scale while small ones are 1:1000. For warship enthusiasts this is a most fascinating volume.

## Anson—from page 359

### CAMOUFLAGE AND MARKINGS

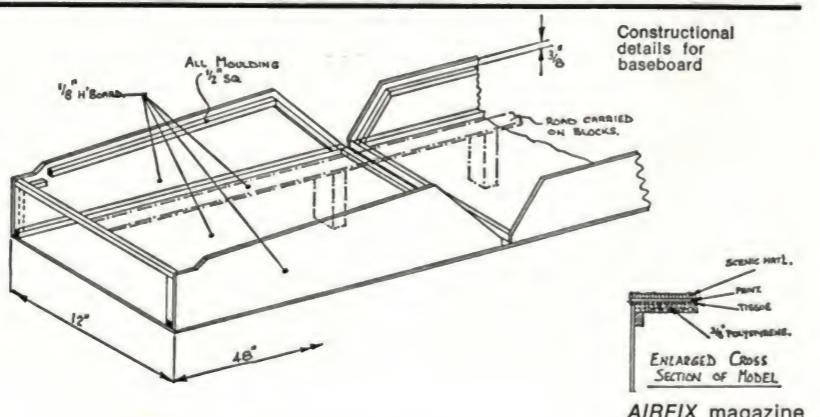
Two alternatives are provided in the plans with this article. The camouflaged aircraft is perhaps easier to do than the silver one, particularly for beginners who may have a problem with silver paint. The yellow fuselage bands for the No 3 ANS aircraft will have to be masked out before painting the camouflage and I advise the use of Humbrol signal yellow (220) as the nearest readily available colour to training yellow used on these aircraft.

Markings came from a variety of sources. Several of the individual items on these aircraft did not follow standard pattern. The underwing serials for example were wider in the letter stroke than others and I found that the old Yeoman half inch black offerings fitted very well. There are several sources for other codes and serials but in the main they came from the Almark range with the exception of the 'C' type roundels above the wing. The only source I could find of these markings to the size required was in the Microdecal sheet of RAF markings.

## Hadrian's Wall—from page 353

Part	Colour
Yard Surrounding Buildings Inside Fort	Light Grey painted in black lines to represent Roadway between gates and Stone Flagging

Area outside Fort	Matt Green to tone with model. Cover with Scenic Material when in position
-------------------	--



AIRFIX magazine



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## New Kits — from page 377

figures and the full range of instruments is extremely fine, and we were particularly impressed by the way in which hands and fingers are perfectly positioned.

Full marks to Historex for these pieces, which can be supplied, at 70p each for individual figures, £1.50 for a set of three drummers, or £3.00 for a complete rank of seven musicians, from Historex Agents, 3 Castle Street, Dover, Kent, by whose courtesy we received our samples. R.S.D.

### Minot: 54mm scale figures

THE Napoleonic era continues to exercise over military modellers and collectors a fascination that shows no sign of diminishing. Barry Minot has designed a series of 54 mm figures, representing

soldiers of this period, which extends the range of quality figures available to the Napoleonic enthusiast.

Cast in malleable white metal and individually animated, these distinctive models admirably depict the elegant uniforms of the period, and there is also a neat figure of the Emperor himself. We were impressed by the French hussar in campaign dress, seated on a frantically rearing horse, and about to make a cut at an enemy on his bridle-arm side. This is the only mounted figure in the range so far, and is a lively and well-balanced piece.

Figures available are: British line infantryman 1815; French Guard Grenadier 1815; French Drum-Major; Napoleon; French Imperial Guard Drummer; French

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At 95p each unpainted and £4.50 each painted the foot figures represent good value, as does the mounted Hussar at £3.00 unpainted. They can be obtained, at these prices, plus postage and packing from Greenwood and Ball, Martinhoe, East End Way, Pinner, Middlesex, HA5 3BS, who supplied our review samples. R.S.D.

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**Bender & Taylor: Uniforms, Organization & History of the Waffen-SS, I.** 160 pp. (6 x 9 in.), 350 drawings (many colour) & photos. £4.60

Please note: All prices include postage at new rates. Call to see my many other references for scale model subjects! (Early closing Wednesday 1 p.m.). GRAHAM K. SCOTT, 2 THE BROADWAY, FRIERN BARNET ROAD, LONDON, ENGLAND, N11 3DU ('Phone: 01-368 8568).

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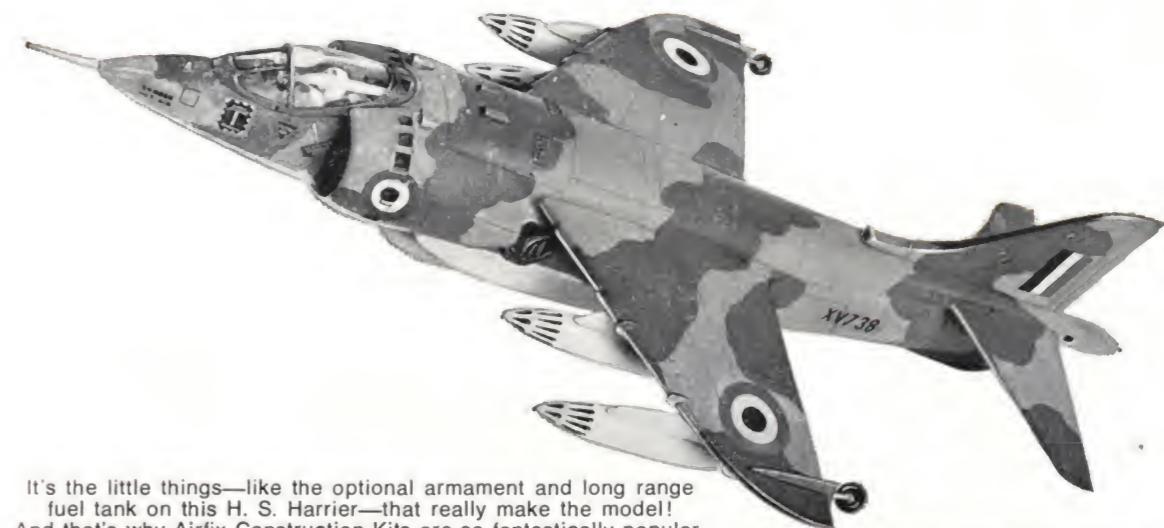
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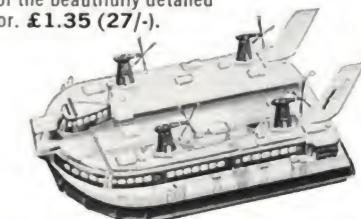
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